MCQ Questions for Class 10 Science with Answers

Chapter 1 Chemical Reactions and [1]Equations

1. Which of the following is a displacement reaction?

(a) $MgCO_3 \longrightarrow MgO + CO_2$
(b) $2Na + 2H_2O \longrightarrow 2NaOH + H_2$
(c) $2H_2 + O_2 \longrightarrow 2H_2O$
(d) $2Pb(NO_3)_2 \xrightarrow{Heat} 2PbO + 4NO_2 + O_2$

Answer/ Explanation

Answer: b
Explaination: Reason: Here sodium (Na) displaces to form sodium hydroxide.

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2. Magnesium ribbon is rubbed before burning because it has a coating of
(a) basic magnesium carbonate
(b) basic magnesium oxide
(c) basic magnesium sulphide
(d) basic magnesium chloride

Answer

Answer: a

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3. Which of the following statements about the given reaction are correct?
$3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$
(i) Iron metal is getting oxidised
(ii) Water is getting reduced
(iii) Water is acting as reducing agent
(iv) Water is acting as oxidising agent
(a) (i), (zi) and (iii)
(b) (in) and (iv)
(c) (i), (ii) and (iv)
(d) (ii) and (iv)

Answer

Answer: c

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4. Which of the following are exothermic processes?
(i) Reaction of water with quick lime
(ii) Dilution of an acid
(iii) Evaporation of water
(iv) Sublimation of camphor (crystals)
(a) (i) and (ii)
(b) (ii) and (iii)
(c) (i) and (iv)
(d) (ii) and (iv)

Answer/ Explanation

Answer: a
Explaination: Reason: In both the cases, heat energy is evolved.

5. Oxidation is a process which involves
(a) addition of oxygen
(b) addition of hydrogen
(c) removal of oxygen
(d) removal of hydrogen

Answer

Answer: a

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6. The process of reduction involves
(a) addition of oxygen
(b) addition of hydrogen
(c) removal of oxygen
(d) removal of hydrogen

Answer

Answer: b

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7. Three beakers labelled as A, B and C each containing 25 ml of water were taken. A small amount of NaOH, anhydrous $CuSO_4$ and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solution contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls. Which one of the following statement(s) is (are) correct?
(i) In beakers A and B, exothermic process has occurred.
(ii) In beakers A and B, endothermic process has occuBftd.
(iii) In beaker C exothermic process has occurred.
(iv) In beaker C endothermic process has occurred.

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(a) (i) only
(b) (ii) only
(c) (i) and (iv)
(d) (iv), (ii) and (iii)

Answer

Answer: c

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8. Give the ratio in which hydrogen and oxygen are present in water by volume.
(a) 1:2
(b) 1:1
(c) 2:1
(d) 1:8

Answer

Answer: a

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9. Which among the following statement(s) is (are) true?
Exposure of silver chloride to sunlight for a long duration turns grey due to
(i) the formation of silver by decomposition of silver chloride
(ii) sublimation of silver chloride
(iii decomposition of chlorine gas from silver chloride
(iv) oxidation of silver chloride
(a) (i) only
(b) (i) and (iii)
(c) (ii) and (iii)
(d) (iv) only

Answer

Answer: a

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10. $MnO_2 + 4HCl \rightarrow {}_2 + 2H_2O + Cl_2$
Identify the substance oxidized in the above . equation.
(a) $MnCl_2$
(b) HCl
(c) H_2O
(d) MnO_2

Answer/ Explanation

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Answer: d
Explaination: Reason: In this reaction HCl is oxidised to Cl_2, whereas MnO_2 is reduced to $MnCl_2$.

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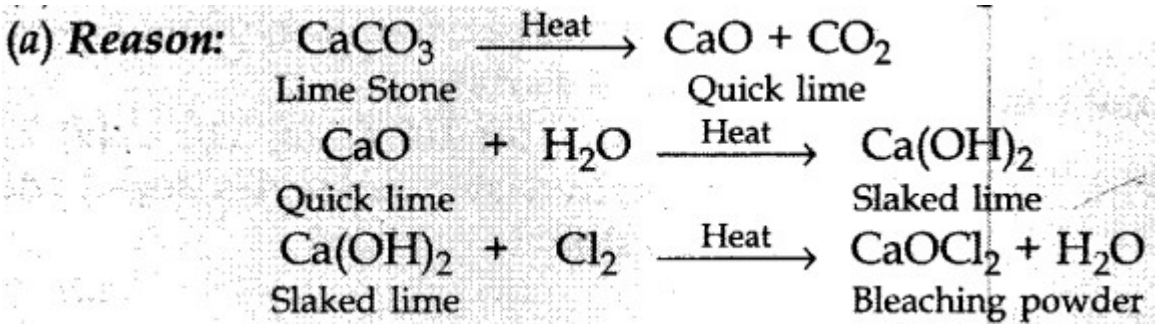
11. A substance 'X' is used in white-washing and is obtained by heating limestone in the absence of air. Identify 'X'.
(a) $CaOCl_2$
(b) $Ca(OH)_2$
(c) CaO
(d) $CaCO_3$

Answer/ Explanation

Answer:
Explaination:



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12. When Ag is exposed to air it gets a black coating of
(a) $AgNO_3$
(b) Ag_2S
(c) Ag_2O
(d) Ag_2CO_3

Answer

Answer: b

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13. Which of the following is an endothermic process?
(a) Dilution of sulphuric acid
(b) Sublimation of dry ice
(c) Condensation of water vapours
(d) Respiration in human beings

Answer

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Answer: b

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14. In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity if lead nitrate is not available, which of the following can be used in place of lead nitrate?
(a) Lead sulphate (insoluble)
(&) Lead acetate
(c) Ammonium nitrate
(d) Potassium sulphate

Answer

Answer: b

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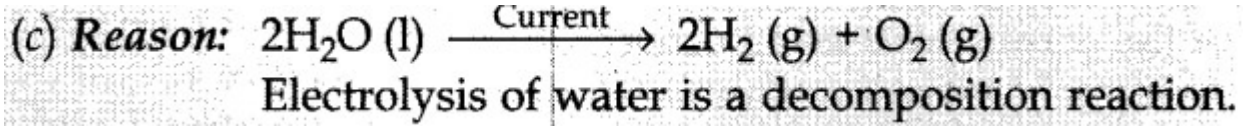
15. What type of chemical reactions take place when electricity is passed through water?
(a) Displacement
(b) Combination
(c) Decomposition
(d) Double displacement

Answer/ Explanation

Answer: c
Explanation:



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16. Select the oxidising agent for the following reaction:
$H_2S + I_2 > 2HI + S$
(a) I_2
(b) H_2S
(C) HI
(d) S

Answer

Answer: a

---

17. A substance added to food containing fats and oils is called:
(a) Oxidant

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(b) Rancid
(c) Coolant
(d) Antioxidant

Answer

Answer: d

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18. The condition produced by aerial oxidation of fats and oils in foods marked by unpleasant smell and taste is called:
(a) antioxidation
(b) reduction
(c) rancidity
(d) corrosion

Answer

Answer: c

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19. Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is:
(a) 1 : 1
(b) 2:1
(c) 4:1
(d) 1:2

Answer

Answer: b

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20. When S02 gas is passed through saturated solution of H2S, which of the following reaction occurs?
(a) $SO_2 + 2H_2S \rightarrow 2H20 + 3S$
(b) $SO_2 + 2H_2S \rightarrow H20 + 3S$
(c)$SO_2 + H_2S \rightarrow H_2O + S$
(d) $SO_2 + H_2O \rightarrow SO_3 + H_2$

Answer

Answer: a

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21. Name the products formed when iron filings are heated with dilute hydrochloric acid
(a) Fe (III) chloride and water
(b) Fe (II) chloride and water
(c) Fe (II) chloride and hydrogen gas
(d) Fe (III) chloride and hydrogen gas

Answer/ Explanation

Answer: d
Explaination: Reason: $2Fe + 6HCl \rightarrow 2FeCl_3$ (Iron (III) chloride) + $3H_2$

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22. $Pb + CuCl_2 \rightarrow PbCl_2 + Cu$
The above reaction is an example of:
(a) combination
(b) double displacement
(c) decomposition
(d) displacement

Answer

Answer: d

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23. Which of the following gases can be used for storage (a) Carbon dioxide or Oxygen
(b) Nitrogen or Oxygen
(c) Carbon dioxide or Helium
(d) Helium or Nitrogen

Answer

Answer: d

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24. A dilute ferrous sulphate solution was gradu¬ally added to the beaker containing acidified permanganate solution. The light purple colour of the solution fades and finally disap¬pears. Which of the following is the correct explanation for the observation?
(a) $KMnO_4$ is an oxidising agent, it oxidises $FeSO_4$.
(b) $FeSO_4$ acts as an oxidising agent and oxidises $KMNO_4$.
(c) The colour disappears due to dilution; no reaction is involved.
(d) $KMnO_4$ is an unstable compound and de-composes in presence of $FeSO_4$. to a colourless compound.

Answer

Answer: a

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25. In which of the following chemical equations, the abbreviations represent the correct states of the reactants and products involved at reaction temperature?

(a) $2H_2$ (l) + O_2 (l) > $2H_2O$(g)

(b) $2H_2$ (g) + O_2 (l) > $2H_2O$ (l)

(c) $2H_2$ (g) + O_2 (g) > $2H_2O$ (l)

(d) $2H_2$ (g) +O_2 (g) > $2H_2O$ (g)

Answer

Answer: d

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Fill in the Blanks

1. The addition of oxygen to a substance is called ……. whereas removal of oxygen is called ……. .
2. The addition of hydrogen to a substance is called ……. whereas removal of hydrogen is called ……. .
3. Precipitation reactions produce insoluble ……. .
4. Reactions in which energy is given out are known as ……. .
5. Reaction in which an element displaces another element from its compound is called ……. .
6. Two antioxidants which are usually added to fat and oil containing foods to prevent rancidity, are ……., ……. .
7 ……. is the process in which metals are eaten up gradually by the action of air, moisture or a chemical on their surface.
8. 2 $FeSO_4$ → Fe_2O_3 + SO_2 + …….
9. Na_2SO_4 + $BaCl_2$ → ……. + 2NaCl
10. Complete the missing components/variables given as x and y in the following reactions:

(a) Pb $(NO_3)_2$ (aq) + 2KI (aq) → PbI_2 (x) + $2KNO_3$ (y)

(b) Cu (s) + $2AgNO_3$ (aq) → Cu $(NO_3)_2$ (aq) + x (s)

Answers

1. oxidation, reduction
2. reduction, oxidation
3. salts
4. exothermic reactions
5. displacement reaction
6. BHA and BHT
7. Corrosion
8. SO_3

9. $BaSO_4$
10. (a) x → (s); y → (aq);
(b) x → 2Ag

Chapter 2 Acids Bases and Salts

1. What happens when a solution of an acid is mixed with a solution of a base in a test tube?
(i) Temperature of the solution decreases
(ii) Temperature of the solution increases
(in) Temperature of the solution remains the same
(iv) Salt formation takes place
(a) (i) and (iv)
(b) (i) and (iii)
(c) (ii) only
(d) (ii) and (iv)

Answer

Answer: d

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2. When hydrogen chloride gas is prepared on a humid day, the gas is usually passed through the guard tube containing calcium chloride. The role of calcium chloride taken in the guard tube is to
(a) absorb the evolved gas
(b) moisten the gas
(c) absorb moisture from the gas
(d) absorb Cl^- ions from the evolved gas

Answer/ Explanation

Answer: c
Explaination: Reason: Guard tube drys (absorbs water) from calcium chloride on a humid day.

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3. Which one of the following salts does not con-tain water of crystallisation?
(a) Blue vitriol
(b) Baking soda
(c) Washing soda
(d) Gypsum

Answer

Answer: b

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4. In terms of acidic strength, which one of the following is in the correct increasing order?
(a) Water < Acetic acid < Hydrochloric acid
(b) Water < Hydrochloric acid < Acetic acid
(c) Acetic acid < Water < Hydrochloric acid
(d) Hydrochloric acid < Water < Acetic acid

Answer

Answer: a

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5. What is formed when zinc reacts with sodium hydroxide?
(a) Zinc hydroxide and sodium
(b) Sodium zincate and hydrogen gas
(c) Sodium zinc-oxide and hydrogen gas
(d) Sodium zincate and water

Answer/ Explanation

Answer: b
Explaination: Reason: $Zn + 2NaOH \rightarrow Ma_2Zn0_2$ (Sodium Zincate) + H_2

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6. Tomato is a natural source of which acid?
(a) Acetic acid
(b) Citric acid
(c) Tartaric acid
(d) Oxalic acid

Answer

Answer: d

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7. Brine is an
(a) aqueous solution of sodium hydroxide
(b) aqueous solution of sodium carbonate
(c) aqueous solution of sodium chloride
(d) aqueous solution of sodium bicarbonate

Answer

Answer: c

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8. $Na_2CO_3 . 10H_2O$ is
(a) washing soda

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(b) baking soda
(c) bleaching powder
(d) tartaric acid

Answer

Answer: a

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9. At what temperature is gypsum heated to form Plaster of Paris?
(a) 90°C
(b) 100°C
(c) 110°C
(d) 120°C

Answer

Answer: b

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10. How many water molecules does hydrated cal-cium sulphate contain?
(a) 5
(b) 10
(c) 7
(d) 2

Answer/ Explanation

Answer: d
Explaination: Reason: Chemical formula of hydrated calcium sulphate or gypsum is $CaSO_4.2H_2O$

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11. Sodium carbonate is a basic salt because it is a salt of a
(a) strong acid and strong base
(b) weak acid and weak base
(c) strong acid and weak base
(d) weak acid and strong base

Answer

Answer: d

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12. Alkalis are
(a) acids, which are soluble in water
(b) acids, which are insoluble in water

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(c) bases, which are insoluble in water
(d) bases, which are soluble in water

Answer

Answer: d

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13. Which of the following statements is correct about an aqueous solution of an acid and of a base?
(i) Higher the pH, stronger the acid
(ii) Higher the pH, weaker the acid
(in) Lower the pH, stronger the base
(iv) Lower the pH, weaker the base
(a) (i) and (iii)
(b) (ii) and (iii)
(c) (i) and (iv)
(d) (ii) and (iv)

Answer/ Explanation

Answer: d
Explaination: Reason: Stronger the acid, lesser is the pH. Stronger the base, higher is the pH.

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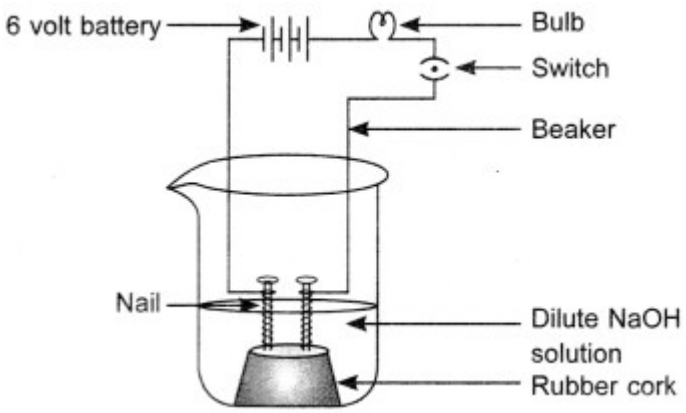
14. The apparatus given in the adjoining figure was set up to demonstrate electrical conductivity.



Which of the following statement(s) is (are) correct?
(i) Bulb will not glow because electrolyte is not acidic.
(ii) Bulb will glow because HCl is a strong acid and furnishes ions for conduction.
(iii) Bulb will not glow because circuit is incomplete.
(iv) Bulb will not glow because it depends upon the type of electrolytic solution.
(a) (i) and (iii)
(b) (ii) and (iv)
(c) (ii) only
(d) (iv) only

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Answer

Answer: c

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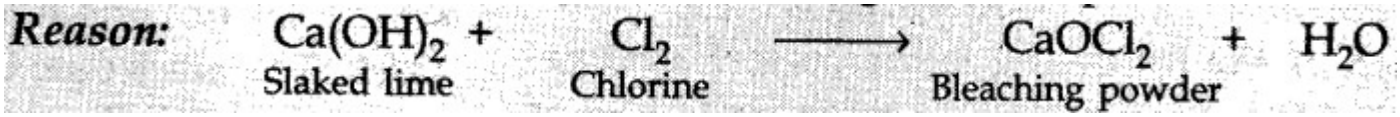
15. Lime water reacts with chlorine to give
(a) bleaching powder
(b) baking powder
(c) baking soda
(d) washing soda

Answer/ Explanation

Answer: c
Explaination:



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16. Nettle sting is a natural source of which acid?
(a) MetiWanoic acid
(b) Lactic acid
(c) Citric acid
(d) Tartaric acid

Answer

Answer: a

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17. Tooth enamel is made up of
(a) calcium phosphate
(b) calcium carbonate
(c) calcium oxide
(d) potassium

Answer

Answer: a

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18. What is the pH range of our body?
(a) 7.0 – 7.8
(b) 7.2 – 8.0
(c) 7.0 – 8.4
(d) 7.2 – 8.4

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Answer

Answer: a

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19. Rain is called acid rain when its:
(a) pH falls below 7
(b) pH falls below 6
(c) pH falls below 5.6
(d) pH is above 7

Answer

Answer: c

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20. Sodium hydroxide is a
(a) weak base
(b) weak acid
(c) strong base
(d) strong acid

Answer/ Explanation

Answer: c
Explanation: Reason: Sodium hydroxide ionises in water and produces a large amount of hydroxide ions.

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21. An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reverse the change?
(a) Baking powder
(b) Lime
(c) Ammonium hydroxide solution
(d) Hydrochloric acid

Answer

Answer: d

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22. When copper oxide and dilute hydrochloric acid react, colour changes to
(a) white
(b) bluish-green
(c) blue-black
(d) black

Answer/ Explanation

Answer: b
Explanation: Reason: Blue-green colour of solution is due to the formation of copper (II) chloride.

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23. Sodium hydroxide is used
(a) as an antacid
(b) in manufacture of soap
(c) as a cleansing agent
(d) in alkaline batteries

Answer

Answer: b

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24. Sodium hydroxide turns phenolphthalein solution
(a) pink
(b) yellow
(c) colourless
(d) orange

Answer

Answer: a

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25. Chemical formula of washing soda is
(a) $Na_2C0_3 . 7H_2O$
(b) $Na_2C0_3 . 5H_2O$
(c) $Na_2C0_3 . 2H_2O$
(d) $Na_2C0_3 . 10H_2O$

Answer

Answer: d

Fill in the blanks

1. Acids turn ……. litmus solution……. .
2. pH of basic solution is always ……. than 7.
3. ……. are the products obtained when bleaching powder reacts with dilute sulphuric acid.
4. Potassium nitrate has pH value equal to ……. .
5. ……. is the fixed number of water molecules chemically attached to each formula unit of a salt in its crystalline form.
6. ……. is one of the raw materials for the production of baking soda.

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7. The salts of a strong acid and weak base are ……. with pH value ……. than 7.
8. Use of mild base like ……. on the bee-stung area gives relief.
9. During indigestion the stomach produces too much ……. and this causes pain and irritation.
10. The presence of ……. Ca in acids is responsible for their acidic properties.
11. Mixing an acid or base with water results in decrease in the concentration of per unit volume. This process is called
12. Among HCl, H_2SO_4 and CH_3COOH, ……. is a weak acid.

Answers

1. blue, red
2. more/greater
3. $CaSO_4$, Cl_2, H_2O
4. 7 or seven
5. Water of crystallisation
6. Sodium chloride
7. acidic, less
8. baking soda
9. acid (HCl)
10. H^+
11. OH^- ions/H_3O^+ ions, dilution
12. CH_3COOH

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Chapter 3 Metals and Non-Metals

1. Aluminium is used for making cooking uten¬sils. Which of the following properties of aluminium are responsible for the same?
(i) Good thermal conductivity
(ii) Good electrical conductivity
(iii) Ductility
(iv) High melting point
(a) (i) and (ii)
(b) (i) and (iii)
(c) (ii) and (iii)
(d) (i) and (iv)

Answer

Answer: d

2. The most abundant metal in the earth's crust is
(a) Iron
(b) Aluminium
(c) Calcium
(d) Sodium

Answer

Answer: b

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3. The poorest conductor of heat among metals is
(a) Lead
(b) Mercury
(c) Calcium
(d) Sodium

Answer

Answer: a

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4. Which property of metals is used for making bells and strings of musical instruments like Sitar and Violin?
(a) Sonorousness
(b) Malleability
(c) Ductility
(d) Conductivity

Answer

Answer: a

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5. $Al_2O_3 + 2NaOH \rightarrow \ldots\ldots + H_2O$

(a) $Al(OH)_3$

(b) Na_2O

(c) $NaAlO_2$

(d) $AlNaO_2$

Answer

Answer: c

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6. Which of the following is the correct arrange-ment of the given metals in ascending order of their reactivity?
Zinc, Iron, Magnesium, Sodium
(a) Zinc > Iron > Magnesium > Sodium
(b) Sodium > Magnesium > Iron > Zinc
(c) Sodium > Zinc > Magnesium > Iron
(d) Sodium > Magnesium > Zinc > Iron

Answer

Answer: d

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7. Which of the following pairs will give dis-placement reactions?
(a) $FeSO_4$ solution and Copper metal
(b) $AgNO_3$ solution and Copper metal
(c) $CuSO_4$ solution and Silver metal
(d) NaCl solution and Copper metal

Answer

Answer: b

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8. Non-metals form covalent chlorides because
(a) they can give electrons to chlorine
(b) they can share electrons with chlorine
(c) they can give electrons to chlorine atoms to form chloride ions
(d) they cannot share electrons with chlorine atoms

Answer

Answer: b

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9. Which of the following oxide(s) of iron would be obtained on prolonged reaction of iron with steam?
(a) FeO
(b) Fe_2O_3
(c) Fe_3O_4
(d) Fe_2O_3 and Fe_2O_4

Answer/ Explanation

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Answer: c
Explaination: Reason: $3Fe\ (s) + 4H_2O\ (g) \rightarrow Fe_3O_4\ (s) + 4H_2\ (g)$

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10. Which of tire following are not ionic compounds?
(i) KCl
(ii) HCl
(iii) CCl_4
(iv) NaCl
(a) (i) and (ii)
(b) (ii) and (iii)
(c) (iii) and (iv)
(d) (i) and (iii)

Answer

Answer: b

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11. The electronic configuration of three elements X, Y and Z are as follows:
X = 2, 4, Y = 2, 7, Z = 2,1 Which two elements will combine to form an ionic compound and write the correct formula,
(a) X_2Y
(b) YZ
(c) XZ3</sub
(d) Y2Z

Answer

Answer: b

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12. The highly reactive metals like Sodium, Potas-sium, Magnesium, etc. are extracted by the
(a) electrolysis of their molten chloride
(b) electrolysis of their molten oxides
(c) reduction by aluminium
(d) reduction by carbon

Answer

Answer: a

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13. Which of the following non-metal is lustrous?
(a) Sulphur

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(b) Oxygen
(c) Nitrogen
(d) Iodine

Answer

Answer: d

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14. Example of an amphoteric oxide is:
(a) Na_2O
(b) K_2O
(C) Al_2O_3
(d) MgO

Answer

Answer: c

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15. Which one among the following is an acidic oxide?
(a) Na_2O
(b) CO
(c) CO_2
(d) Al_2O_3

Answer

Answer: c

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16. The atomic number of an element ‘X’ is 12. Which inert gas is nearest to X?
(a) He
(b) Ar
(c) Ne
(d) Kr

Answer/ Explanation

Answer: c
Explaination: Reason: ‘X’ is Magnesium and Argon (Ar) with atomic number 12 is the closest inert gas to it.

17, The process in which a carbonate ore is heated strongly in the absence of air to convert it into metal oxide is called

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(a) Roasting
(b) Reduction
(c) Calcination
(d) Smelting

Answer

Answer: c

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18. Oxides of moderately reactive metals like Zinc, Iron, Nickel, Tin, Copper etc. are reduced by using
(a) Aluminium as reducing agent
(b) Sodium as reducing agent
(c) Carbon as reducing agent
(d) Calcium as reducing agent

Answer

Answer: c

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19. In thermite welding a mixture of …… and …… is ignited with a burning magnesium ribbon which produces molten iron metal as large amount of heat is evolved.
(a) iron (III) oxide and aluminium powder
(b) iron (II) oxide and aluminium powder
(c) iron (III) chloride and aluminium powder
(d) iron (III) sulphate and aluminium powder

Answer

Answer: a

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20. Galvanisation is a method of protecting iron from rudftng by coating with a thin layer of
(a) Galium
(b) Aluminium
(c) Zinc
(d) Silver

Answer

Answer: c

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21. An element X is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in air. It reacts vigorously with water. Identify the element from the following
(a) Mg

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(b) Na
(c) P
(d) Ca

Answer

Answer: b

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22. Reaction between X and Y forms compound Z. X loses electron and Y gains electron. Which of the following properties is not shown by Z?
(a) Has high melting point
(b) Has low melting point
(c) Conducts electricity in molten state
(d) Occurs as solid

Answer/ Explanation

Answer: c
Explanation: Reason: Z is an ionic compound. It has a high melting point.

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23. The electronic configurations of three ele¬ments X, Y and Z are X — 2, 8; Y — 2, 8, 7 and Z — 2, 8, 2. Which'of the following is correct?
(a) X is a metal
(b) Y is a metal
(c) Z is a non-metal
(d) Y is a non-metal and Z is a metal

Answer/ Explanation

Answer: c
Explanation: Reason: According to the electronic configuration, Y is Chlorine and Z is Magnesium.

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24. Amalgam is an alloy of
(a) Copper and Tin
(b) Mercury
(c) Lead and Tin
(d) Copper and Zinc

Answer

Answer: b

---

25. Copper objects lose their shine and form green coating of
(a) Copper oxide

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(b) Copper hydroxide and Copper oxide
(c) Basic Copper carbonate
(d) Copper carbonate

Answer

Answer: c

Fill in the blanks

1. Elements can be classified as …… and ……. .
2. Two examples of metals which are poor conductors of heat are ……., …… .
3. Two metals which melt when kept on the palm are ……., …… .
4. A non-metal which is a good conductor of electricity is …… .
5. Metals can form positive ions by …… .
6. A non-metal which is lustrous is …… .
7. A metal which burns in air with a dazzling white flame is …… .
8. Metals above hydrogen in the activity series can displace …… from dilute acids.
9. The extraction of metals from their ores and then refining them for use is known as …… .
10. …… is an allotroph of carbon and is the hardest natural substance.
11. Metals which are so soft that they can be cut with a knife are ……., ……
12. Metal oxides …… and …… dissolve in water to form alkalis.

Answers

1. metals, non-metals
2. Lead, Mercury
3. Gallium, Caesium
4. Graphite
5. losing electrons
6. Iodine
7. Magnesium
8. Hydrogen
9. metallurgy
10. Diamond
11. Sodium, Potassium
12. Sodium Oxide and Potassium oxide

Chapter 4 Carbon and Its Compounds

1. Which of the following statements are correct for carbon compounds?
(i) Most carbon compounds are good conductors of electricity.

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(ii) Most carbon compounds are poor conductors of electricity.
(iii) Force of attraction between molecules of carbon compounds is not very strong.
(iv) Force of attraction between molecules of carbon compounds is very strong.
(a) (ii) and (iv)
(b) (ii) and (iii)
(c) (i) and (iv)
(d) (i) and (iii)

Answer

Answer: b

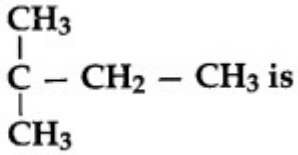
---

2. C_3H_8 belongs to the homologous series of
(a) Alkynes
(b) Alkenes
(c) Alkanes
(d) Cyclo alkanes

Answer

Answer: c

3.

The IUPAC name of  **is**

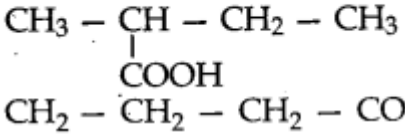
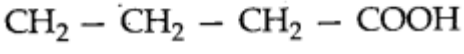
(a) 2-ethyl-2-methyl propane
(b) 2, 2-demethyl butane
(c) 1,1,1-trimethyl propane
(d) 2, 2-methyl butane

Answer

Answer: b

---

4. Which of the following is the formula of Butanoic acid?

(a) $CH_3CH_2CH_2CH_2COOH$
(b) $COOH-CH_2-CH_2-CH_2-CH_3$
(c) 
(d) 

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Answer

Answer: d

---

5. The number of isomers of pentane is
(a) 2
(b) 3
(c) 4
(d) 5

Answer

Answer: b

---

6. Which of the following will undergo addition reactions?
(a) CH_4
(b) C_3H_8
(C) C_2H_6
(d) C_2H_4

Answer

Answer: d

---

7. When ethanoic acid is treated with NaHCO^ the gas evolved is
(a) H_2
(b) CO_2
(c) CH_4
(d) CO

Answer

Answer: b

---

8. Ethanol on complete oxidation gives
(a) acetic acid/ethanoic acid
(b) CO_2 and water
(c) ethanal
(d) acetone/ethanone

Answer

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Answer: b

---

9. Which of the following will give a pleasant smell of ester when heated with ethanol and a small quantity of sulphuric acid?
(a) CH_3COOH
(b) CH_3CH_2OH
(c) CH_3OH
(d) CH_3CHO

Answer

Answer: a

---

10. Name the functional group present in CH_3COCH_3.
(a) Alcohol
(b) Carboxylic acid
(c) Ketone
(d) Aldehyde

Answer

Answer: c

11. Why does carbon form compounds mainly by covalent bonding?
(a) There are four electrons in the outermost shell of carbon.
(b) It requires large amount of energy to form C^{4+} or C4sup>4-.
(c) It shares its valence electrons to complete its octet.
(d) All the above.

Answer

Answer: d

---

12. Addition reactions are undergone by
(a) saturated hydrocarbons (alkanes)
(b) only alkenes
(c) only alkynes
(d) both alkenes and alkynes

Answer

Answer: d

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13. Identify 'A' in the following reaction:
$CH_3COOH + Na_2CO_3 \rightarrow A + CO_2 + H_0O$

(a) CH_3COONa

(b) $CH_2(Na)COOH$

(c) NaOH

(d) $NaHCO_3$

Answer

Answer: a

14. Which of the following belongs to homologous series of alkynes?
C_6H_6, C_2H_6, C_2H_4, C_3H_4.

(a) C_6H_6

(b) C_2H_4

(C) C_2H_6

(d) C_3H_4

Answer

Answer: d

15. A hydrocarbon has four carbon atoms. Give its molecular formula if it is an alkene.

(a) C_4H_{10}

(b) C_4H_8

(C) C_4H_6

(d) C_4H_4

Answer

Answer: b

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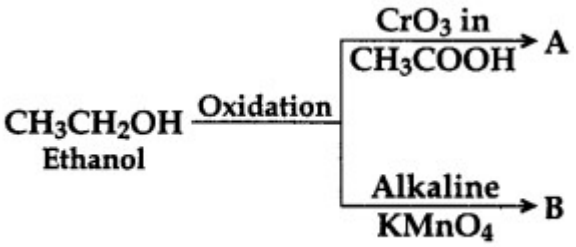
16. Identify A and B



(a) CH_3CHO, Ethanal, CH_3COOH Ethanoic acid
(b) CH_3COOH, Ethanoic acid CH_3CHO Ethanal
(c) CH_3CHO, Ethanal $CO_2 + H_2O$
(d) CH_3COOH, Ethanoic acid $CO_2 + H_2O$

Answer

Answer: a

---

17. Give the IUPAC name of $CH_3COOC_2H_5$.

(a) Ethyl ethanoic acid
(b) Butanoate
(c) Ethyl ethanoate
(d) Etyl methyl carboxylic acid

Answer

Answer: c

---

18. The firSt member of the alkyne homologous series is

(a) propyne
(b) ethyne
(c) methane
(d) ethene

Answer

Answer: b

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19. In diamond, each carbon atom is bonded to four other carbon atoms to form
(a) a hexagonal array
(b) a rigid three-dimensional structure
(c) a structure in the shape of a football
(d) a structure of a ring

Answer

Answer: b

---

20. A soap molecule has a
(a) hydrophobic head and hydrophobic tail
(b) hydrophobic head and hydrophilic tail
(c) hydrophilic head and hydrophilic tail
(d) hydrophilic head and hydrophobic tail

Answer

Answer: d

Fill in the Blanks
1. ……. is a versatile element that forms the basis for all living organisms and many of the things we use.
2. Covalent bonds are formed by the ……. of electrons between two atoms so that both can achieve a
completely filled outermost shell.
3. The unsaturated hydrocarbons which contain one or more double bonds are called
4. The general formula of alkynes is ……. .
5. A group of organic compounds having similar structures and similar chemical properties in which the successive compounds differ by CH2 group is called a ……. .
6. ……. are sweet-smelling substances which are used in making perfumes.

ANSWERS
1. Carbon
2. sharing
3. alkenes
4. C_nH_{2n-2}
5. homologous series
6. Esters

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Chapter 5 Periodic Classification of Elements

1. Newlands relation is called
(a) Musical Law
(b) Law of Octaves
(c) Periodic Law
(d) Atomic Mass Law

Answer

Answer: b

---

2. Upto which element, the Law of Octaves was found applicable?
(a) Oxygen
(b) Calcium
(c) Cobalt
(d) Potassium

Answer

Answer: b

---

3. In Mendeleev's Periodic Table, gaps were left for the elements to be discovered later. Which of the following elements found a place in the Periodic Table later?
(a) Chlorine
(b) Silicon
(c) Oxygen
(d) Germanium

Answer

Answer: d

---

4. At the time of Mendeleev, the number of elements known was
(a) 63
(b) 65
(c) 62
(d) 64

Answer

Answer: a

PRASANTH KUMAR ROYAL'S

5. The properties of eka-aluminium predicted by Mendeleev are the same as the properties of later discovered element:
(a) Scandium
(b) Germanium
(c) Gallium
(d) Aluminium

Answer

Answer: c

---

6. An atom of an element has the electronic confi-guration 2,8,2. To which group does it belong?
(a) 4^{th} group
(b) 6^{th} group
(c) 3^{rd} group
(d) 2^{nd} group

Answer

Answer: d

---

7. The arrangement of elements in the Modem Periodic Table is based on their
(a) increasing atomic mass in the period
(b) increasing atomic number in the horizontal rows
(c) increasing atomic number in the vertical columns
(d) increasing atomic mass in the group

Answer

Answer: b

---

8. Where would you locate the element with electronic configuration 2, 8 in the Modern Periodic Table?
(a) Group 8
(b) Group 2
(c) Group 18
(d) Group 10

Answer

Answer: c

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9. Element 'X' forms a chloride with the formula XCl_2, which is a solid with high melting point. X would most likely be in the same group of the periodic table as:
(a) Si
(b) Mg
(c) Al
(d) Na

Answer

Answer: b

---

10. Which of these belong to the same period?

Element	A	B	C
Atomic number	2	10	5

(a) A, B
(b) B, C
(c) C, A
(d) A, B and C

Answer/ Explanation

Answer: b
Explaination: Reason. B= 10 (2, 8), C = 5 (2, 3) Both have 2 periods.

---

11. Carbon belongs to the second period and Group 14. Silicon belongs to the third period and Group 14. If atomic number of carbon is 6, the atomic number of silicon is
(a) 7
(b) 14
(c) 24
(d) 16

Answer

Answer: b

---

12. Pick out the chemically most reactive elements from the given triads.
Li, Na, K F, Cl, Br
(a) Li and F
(b) Li and Br
(c) K and F
(d) K and Br

Answer

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Answer: c

---

13. What is the atomic number of element of period 3 and group 17 of the Periodic Table?
(a) 10
(b) 4
(c) 17
(d) 21

Answer

Answer: c

---

14. Which one of the following statements is not correct about the trends in the properties of the elements of a period on going from left to right?
(a) The oxides become more acidic
(b) The elements become less metallic
(c) There is an increase in the number of valence electrons
(d) The atoms lose their electrons more easily

Answer

Answer: d

---

15. The elements A, B and C belong to groups 1, 14 and 17 respectively of the Periodic Table. Which two elements will form ionic compounds?
(a) A and B
(b) A and C
(c) B and C
(d) None

Answer

Answer: b

---

16. An element X from group 2 of the Periodic Table reacts with Y from group 17 to form a compound. Give the formula of the compound.
(a) XY_2
(b) XY
(c) X_2Y
(d) $(XY)_2$

Answer

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Answer: a

---

17. A metal ‘M’ is in the first group of the Periodic Table. What will be the formula of its oxide?
(a) MO
(b) M_2O
(C) $M2O_3$
(d) MO_2

Answer

Answer: b

---

18. Name the neutral atom in the Periodic Table which has the same number of electrons as K+ and Cl-.
(a) Helium
(b) Argon
(c) Neon
(d) Krypton

Answer

Answer: b

---

19. An element X combines with oxygen to form an oxide XO. This oxide is electrically con¬ducting. Write the formula of the compound formed when X reacts with chlorine.
(a) XCl_3
(b) XCl
(c) XCl_2
(d) XCl_5

Answer

Answer: c

---

20. An element X has mass number 40 and contains 21 neutrons in its atom. To which group of the Periodic Table does it belong?
(a) Group 1
(b) Group 4
(c) Group 2
(d) Group 3

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Answer/ Explanation

Answer: a
Explaination: Reason. e = 19 (2, 8, 8,1)

---

21. Consider the following elements
$_{20}Ca$, $_{8}Or$ $_{18}Ar$, $_{16}S$, $_{4}Be$, $_{2}He$
Which of the above elements would you expect to be in group 16 of the Periodic Table?
(a) $_{20}Ca$ and $_{16}S$
(b) $_{20}Ca$ and $_{8}O$
(c) $_{18}Ar$ and $_{16}S$
(d) $_{8}O$ and $_{16}S$

Answer

Answer: d

---

22. An element ‘A’ belongs to the third period and group 16 of the Periodic Table. Find out the valency of A.
(a) Valency = 6
(b) Valency = 2
(c) Valency = 1
(d) Valency = 3

Answer

Answer: b

---

23. Which one of the following statements is not correct about the trends in the properties of the elements of a group on going down in a group?
(a) The chemical reactivity of metals increases.
(b) The metallic character of elements increases.
(c) The size of the atom increases.
(d) The valence electrons increase.

Answer

Answer: d

---

24. Which of the following set of elements is written in order of their increasing metallic character?
(a) Na Li K

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(b) C Q N
(c) Mg Al Si
(d) Be Mg Ca

Answer

Answer: d

---

25. The atom of an element has electronic con-figuration 2, 8, 7. To which of the following elements would it be chemically similar?
(a) N(7)
(b) P(15)
(c) Na(11)
(d) F (9)

Answer/ Explanation

Answer: d
Explaination: Reason. Both have same number of valence electrons

---

Fill in the blanks

1. The concept of grouping elements into triads was given by …… .
2. Mendeleev's basis for the Periodic Table is …… .
3. The basis for Modern Periodic Table is …… .
4. (a) Metallic character …… down the group.
(b) Atomic size …… along the period.
(c) Electronegative character …… down the group.
5. Isotopes belong to the same …… in the Periodic Table.
6. Halogens belong to group …… of the Periodic Table.
7. An element having electronic configuration (2, 8, 2) belongs to the …… group.
8. Atoms of different elements with the same number of occupied shells are placed in the same …… .
9. Valency of elements …… and then …… as we move across the period while it remains the same down the group.
10. Non-metals are located on the …… side of the Periodic Table.

Answers

1. Dobereiner
2. atomic mass
3. atomic no.
4. (a) increases
(b) decreases
(c) decreases

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5. position
6. 17
7. 12^{th}
8. Period
9. increases, decreases
10. right

Chapter 6 Life Process

1. Which of the following are energy foods?
(a) Carbohydrates and fats
(b) Proteins and mineral salts
(c) Vitamins and minerals
(d) Water and roughage

Answer

Answer: a

---

2. In which mode of nutrition an organism de-rives its food from the body of another living organism without killing it?
(a) Saprotrophic nutrition
(b) Parasitic nutrition
(c) Holozoic nutrition
(d) Autotrophic nutrition

Answer

Answer: b

---

3. The mode of nutrition found in fungi is:
(a) Parasitic nutrition
(b) Holozoic nutrition
(c) Autotrophic nutrition
(d) Saprotrophic nutrition

Answer

Answer: d

---

4. Roots of the plants absorb water from the soil through the process of:
(a) diffusion

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(b) transpiration
(c) osmosis
(d) None of these

Answer

Answer: c

---

5. The site of photosynthesis in the cells of a leaf is
(a) chloroplast
(b) mitochondria
(c) cytoplasm
(d) protoplasm

Answer

Answer: a

---

6. In amoeba, food is digested in the:
(a) food vacuole
(b) mitochondria
(c) pseudopodia
(d) chloroplast

Answer

Answer: a

---

7. Which of the following events in the mouth cavity will be affected if salivary amylase is lacking in the saliva?
(a) Starch breaking down into sugars.
(b) Proteins breaking down into amino acids.
(c) Absorption of vitamins.
(d) Fats breaking down into fatty acids and glycerol.

Answer

Answer: a

---

8. Which region of the alimentary canal absorbs the digested food?
(a) Stomach
(b) Small intestine
(c) Large intestine
(d) Liver

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Answer

Answer: b

---

9. The contraction and expansion movement of the walls of the food pipe is called:
(a) translocation
(b) transpiration
(c) peristaltic movement
(d) digestion

Answer

Answer: c

---

10. When a few drops of iodine solution are added to rice water, the solution turns blue- black in colour. This indicates that rice water contains:
(a) fats
(b) complex proteins
(c) starch
(d) simple proteins

Answer

Answer: c

---

11. The exit of unabsorbed food material is regu-lated by
(a) liver
(b) anus
(c) small intestine
(d) anal sphincter

Answer

Answer: d

---

12. What are the products obtained by anaerobic respiration in plants?
(a) Lactic acid + Energy
(b) Carbon dioxide + Water + Energy
(c) Ethanol + Carbon dioxide + Energy
(d) Pyruvate

Answer

Answer: c

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13. The breakdown of pyruvate to give carbon di-oxide, water and energy takes place in
(a) cytoplasm
(b) mitochondria
(c) chloroplast
(d) nucleus

Answer

Answer: b

14. Glycolysis process occurs in which part of the cell?
(a) Cytoplasm
(b) Nucleus
(c) Mitochondria
(d) Chloroplast

Answer

Answer: a

15. Name the substances whose build up in the muscles during vigorous physical exercise may cause cramps?
(a) Ethanol + Carbon dioxide + Energy
(b) Lactic acid + Energy
(c) Carbon dioxide + Water + Energy
(d) Pyruvate

Answer

Answer: b

16. Name the pores in a leaf through which respi-ratory exchange of gases takes place.
(a) Lenticels
(b) Vacuoles
(c) Xylem
(d) Stomata

Answer

Answer: d

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17. The respiratory pigment in human beings is:
(a) carotene
(b) chlorophyll
(c) haemoglobin
(d) mitochondria

Answer

Answer: c

---

18. Which plant tissue transports water and min-erals from the roots to the leaf?
(a) Xylem
(b) Phloem
(c) Parenchyma
(d) Collenchyma

Answer

Answer: a

---

19. The movement of food in phloem is called:
(a) transpiration
(b) translocation
(c) respiration
(d) evaporation

Answer

Answer: b

---

20. A blood vessel which pumps the blood from the heart to the entire body:
(a) artery
(b) capillary
(c) Vein
(d) Haemoglobin

Answer

Answer: a

---

21. Name a circulatory fluid in the human body other than blood.
(a) Platelets
(b) RBC

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(c) Lymph
(d) Plasma

Answer

Answer: c

---

22. Single circulation, i.e., blood flows through the heart only once during one cycle of passage through the body, is exhibited by which of the following:
(a) hyla, rana, draco
(b) whale, dolphin, turtle
(c) labeo, chameleon, salamander
(d) hippocampus, exocoetus, anabas

Answer

Answer: d

---

23. Name the tube which connects the kidneys to the urinary bladder.
(a) Urethra
(b) Nephron
(c) Tubule
(d) Ureter

Answer

Answer: d

---

24. Which part of nephron allows the selective reabsorption of useful substances like glucose, amino acids, salts and water into the blood capillaries?
(a) Tubule
(b) Glomerulus
(c) Bowman’s capsule
(d) Ureter

Answer

Answer: a

---

25. Where is the dirty blood in our body filtered?
(a) Heart
(b) Lungs
(c) Ureter
(d) Kidneys

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Answer

Answer: d

---

26. The procedure used for cleaning the blood of a person by separating urea from it is called:
(a) osmosis
(b) filtration
(c) dialysis
(d) double circulation

Answer

Answer: c

---

27. Which is the correct sequence of body parts in the human alimentary canal?
(a) Mouth → stomach → small intestine → large intestine → oesophagus
(b) Mouth → oesophagus → stomach → small intestine → large intestine
(c) Mouth → stomach → oesophagus → smallintestine → large intestine
(d) Mouth → oesophagus → stomach → large intestine → small intestine

Answer

Answer: b

---

28. Identify the correct path of urine in the human body.
(a) Kidney → urinary bladder → urethra → ureter
(b) Urinary bladder → ureter → kidney → urethra
(c) Kidney → ureter → urethra → urinary bladder
(d) Kidney → ureter → urinary bladder → urethra

Answer

Answer: d

Fill in the Blanks
1. The exit of food from the stomach is regulated by a ……. muscle.
2. ……. is the longest part of the alimentary canal.
3. The process of breakdown of glucose, (a six-carbon molecule) into pyruvate, (a three-carbon molecule), takes place in the ……. .
4. ……. is the site of the complete digestion of carbohydrates, proteins and fats.
5. Breaking of pyruvate using oxygen takes place in the ……. .
6. Rings of cartilage are present in the wind pipe to ensure that the ……. .
7. The blood has ……. cells which plug the leakage in the vessels by helping to clot the blood at

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the point of injury.
8. ……. transports products of photosynthesis from the leaves to other parts of the plant.

Answers
1. sphincter
2. Small intestine
3. cytoplasm
4. Small intestine
5. mitochondria
6. air-passage does not collapse
7. platelet
8. phloem

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Chapter 7 Control and Coordination

1. Which plant hormone promotes dormancy in seeds and buds?
(a) Auxin
(b) Gibberellin
(c) Cytokinin
(d) Abscisic acid

Answer

Answer: d

---

2. Roots of plants are:
(a) positively geotropic
(b) negatively geotropic
(c) positively phototropic
(d) None of these

Answer

Answer: a

---

3. Response of plant roots towards water is called:
(a) Chemotropism
b) Phototropism
(c) Hydrotropism
(d) Geotropism

Answer

Answer: c

---

4. Movement of sunflower in accordance with the path of Sun is due to
(a) Chemotropism
(b) Geotropism
(c) Phototropism
(d) Hydrotropism

Answer

Answer: c

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5. Which plant hormone promotes cell division?
(a) Auxin
(b) Gibberellin
(c) Cytokinin
(d) Abscisic acid

Answer

Answer: c

---

6. The main function of abscisic acid in plants is
(a) to promote cell division.
(b) to inhibit growth.
(c) to promote growth of stem.
(d) to increase the length of cells.

Answer

Answer: b

---

7. Fall of mature leaves and fruits from plants is triggered by which of the following substance?
(a) Auxin
(b) Cytokinin
(c) Gibberellin
(d) Abscisic acid

Answer

Answer: d

---

8. Any change in the environment to which an organism responds is called
(a) stimulus
(b) coordination
(c) response
(d) hormone

Answer

Answer: a

---

9. A part of the body which responds to the in-structions sent from nervous system is called
(a) receptor
(b) effector
(c) nerves
(d) muscles

Answer

Answer: b

---

10. The longest fibre on the cell body of a neuron is called
(a) sheath
(b) cytoplasm
(c) axon
(d) dendrites

Answer

Answer: c

---

11. Which nerves transmit impulses from the cen¬tral nervous system towards muscle cells?
(a) Sensory nerves
(b) Motor nerves
(c) Relay nerves
(d) Cranial nerves

Answer

Answer: b

---

12. A microscopic gap between a pair of adjacent neurons over which nerve impulses pass is called
(a) neurotransmitter
(b) dendrites

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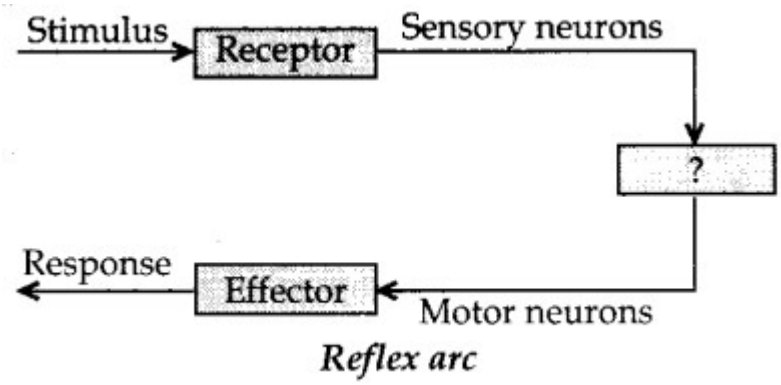
(c) axon
(d) synapse

Answer

Answer: d

13.



Reflex arc

Give the missing term.
(a) Spinal cord
(b) Brain
(c) Cranial nerves
(d) Relay nerves

Answer

Answer: a

---

14. The highest coordinating centre in the human body is
(a) spinal cord
(b) heart
(c) brain
(d) kidney

Answer

Answer: c

---

15. Main function of cerebrum is
(a) thinking
(b) hearing
(c) memory
(d) balancing

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Answer

Answer: a

---

16. Posture and balance of the body is controlled by
(a) Pons
(b) Medulla oblongata
(c) Cerebellum
(d) Cerebrum

Answer

Answer: c

---

17. Breathing is controlled by which part of the brain?
(a) Cerebrum
(b) Cerebellum
(c) Hypothalamus
(d) Medulla oblongata

Answer

Answer: d

---

18. Which part of nervous system controls the re¬flex activities of the body?
(a) Brain
(b) Spinal cord
(c) Cerebrum
(d) Cerebellum

Answer

Answer: b

---

19. Which of the following acts as both endocrine and exocrine gland?
(a) Pancreas
(b) Thyroid
(c) Adrenal
(d) Liver

Answer

Answer: a

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20. Identify which of the following statements about thyroxin is incorrect?
(a) Thyroid gland requires iodine to synthesize thyroxin.
(b) Thyroxin is also called thyroid hormone.
(c) It regulates protein, carbohydrates and fat metabolism in the body.
(d) Iron is essential for the synthesis of thyroxin.

Answer

Answer: d

---

21. Which gland secretes the growth hormone?
(a) Pituitary gland
(b) Thyroid
(c) Hypothalamus
(d) Adrenal

Answer

Answer: a

---

22. The secretion of which hormone leads to physical changes in the body when you are 10-12 years of age?
(a) Oestrogen from testes and testosterone from ovar.
(b) Estrogen from adrenal gland and testosterone from pituitary gland.
(c) Testosterone from testes and estrogen from ovary.
(d) Testosterone from thyroid gland and estrogen from pituitary gland.

Answer

Answer: c

---

23. A diabetic patient suffers from deficiency of which hormone?
(a) Thyroxine
(b) Testosterone
(c) Oestrogen
(d) Insulin

Answer

Answer: d

---

24. Which of the following endocrine glands does not exist in pairs?
(a) Testes
(b) Adrenal

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(c) Pituitary
(d) Ovary

Answer

Answer: c

Fill in the Blanks

1. Control and coordination are the functions of the nervous system and …… in our body.
2. The nervous system uses …… impulses to transmit messages.
3. Central nervous system consists of …… and …… .
4. Largest part of the brain is …… .
5. Defeciency of …… hormone in childhood leads to dwarfism in humans.
6. The growth of pollen tubes towards the ovules is the result of a …… movement.

Answers

1. hormones
2. electrical
3. brain, spinal cord
4. cerebrum
5. growth
6. chemotropic

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Chapter 8 How do Organisms Reproduce?

1. During favourable conditions, Amoeba reproduces by
(a) multiple fission
(b) binary fission
(c) budding
(d) fragmentation

Answer

Answer: b

---

2. A feature of reproduction that is common to Amoeba, Yeast and Spirogyra is that
(a) they reproduce asexually
(b) they are all unicellular
(c) they reproduce only sexually
(d) they are all multicellular

Answer

Answer: a

---

3. The ability of a cell to divide into several cells during reproduction in Plasmodium is called
(a) budding
(b) multiple fission
(c) binary fission
(d) reduction division

Answer

Answer: b

---

4. Bryophyllum can be propagated vegetatively by the
(a) stem
(b) leaf
(c) root
(d) flower

Answer

Answer: b

---

5. Vegetative propagation refers to formation of new plants from
(a) stem, flowers and fruits
(b) stem, leaves and flowers
(c) stem, roots and flowers
(d) stem, roots and leaves

Answer

Answer: d

---

6. In a potato, vegetative propagation takes place by:
(a) root
(b) leaf
(c) stem tuber
(d) grafting

Answer

Answer: c

---

7. Vegetatively propagated plants
(a) do not bear roots

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(b) do not bear buds
(c) are genetically similar
(d) are genetically dissimilar

Answer

Answer: c

---

8. Spirogyra reproduce by
(a) budding
(b) fragmentation
(c) regeneration
(d) fission

Answer

Answer: b

---

9. In Rhizopus, tubular thread like structures bearing sporangia at their tips are called
(a) filaments
(b) hyphae
(c) rhizoids
(d) roots

Answer

Answer: b

---

10. Plants like banana, rose, jasmine, orange have lost the capacity to produce
(a) seeds
(b) buds
(c) flower
(d) roots

Answer

Answer: a

---

11. The flower of the Hibiscus plant is
(a) bisexual
(b) unisexual
(c) neuter
(d) very small

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Answer

Answer: a

---

12. The part of the flower which is present in the centre of the flower is
(a) Sepals
(b) Petals
(c) Carpels
(d) Stamens

Answer

Answer: c

---

13. The seed that contains the future plant is called the
(a) cotyledons
(b) seed coat
(c) germ cells
(d) embryo

Answer

Answer: d

---

14. The period of pregnancy is called
(a) gestation period
(b) incubation period
(c) ovulation
(d) menstruation period

Answer

Answer: a

---

15. The process of release of eggs from the ovary is called
(a) menstruation
(b) reproduction
(c) insemination
(d) ovulation

Answer

Answer: d

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16. The period during adolescence when the reproductive tissues begin to mature is called
(a) ovyfetion
(b) puberty
(c) germination
(d) propagation

Answer

Answer: b

---

17. In human beings, the fertilization occurs in the
(a) uterus
(b) ovaries
(c) fallopian tubes
(d) vagina

Answer

Answer: c

---

18. Along the path of the vas-deferens the secretions of which gland provide nutrition to the sperms?
(a) Prostate glands
(b) Seminal vesicles
(c) Scrotum
(d) Urinary bladder

Answer

Answer: b

---

19. The embryo in humans gets nutrition from the mother’s blood with the help of a special tissue called
(a) Placenta
(b) Villi
(c) Uterus
(d) Womb

Answer

Answer: a

---

20. Which among the following diseases is not sexually transmitted?
(a) Syphyllis

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(b) Hepatitis
(c) HIV-AIDS
(d) Gonorrhea

Answer

Answer: b

---

21. Which of the following method of contraception protects from acquiring sexually trans¬mitted diseases?
(a) Surgery
(b) Condoms
(c) Copper-T
(d) Oral-pills

Answer

Answer: b

---

22. In human males, the testes lie in the scrotum, because it helps in the
(a) process of mating
(b) formation of sperms
(c) easy transfer of gametes
(d) secretion of estrogen

Answer

Answer: b

Fill in the Blanks

1. The process of reproduction involving only one cell or one parent is called …….. .
2. …….. is a duct coming from the urinary bladder which carries sperms.
3. Process of fertilization takes place in the …….. tube in humans.
4. …….. is the ability of an organism to replace its lost body parts.
5. …….. is called the production of new plants from stems, roots or leaves.
6. …….. is the term used to refer to the commencement of menstruation at puberty.
7. …….. is the virus that causes AIDS.

Answers

1. Uniparental/ Asexual reproduction
2. Vas deferens
3. fallopian
4. Regeneration

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5. Vegetative propagation
6. Menarch
7. HIV-Human Immuno Virus

Chapter 9 Heredity and Evolution

1. Process of selecting individuals with desired characters by man is called
(a) Hybridization
(b) Reproduction
(c) Artificial selection
(d) Natural selection

Answer

Answer: c

---

2. Which one of the following pairs are homologous organs?
(a) Forelimbs of a bird and wings of a bat.
(b) Wings of a bird and wings of a butterfly.
(c) Pectoral fins of a fish and forelimbs of a horse.
(d) Wings of a bat and wings of a cockroach.

Answer

Answer: a

---

3. The theory of evolution of species by natural selection was given by
(a) Mendel
(b) Darwin
(c) Lamarck
(d) Weismann

Answer

Answer: b

---

4. A cross between a tall pea-plant (TT) and a short pea-plant (tt) resulted in progenies that were all tall plants because
(a) tallness is the recessive trait.
(b) shortness is the dominant trait.

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(c) height of pea-plant is not governed by gene T or t.
(d) tallness is the dominant trait.

Answer

Answer: b

---

5. The number of pairs of sex chromosomes in the zygote of a human being is
(a) 2
(b) 3
(c) 1
(d) 4

Answer

Answer: c

---

6. A zygote which has an X-chromosome inherited from the father will develop into a
(a) girl
(b) boy
(c) either boy or girl
(d) X-chromosome does not influence the sex of a child.

Answer

Answer: a

---

7. A man with blood group A marries a woman having blood group O. What will be the blood group of the child?
(a) O only
(b) A only
(c) AB
(d) Equal chance of acquiring blood group A or blood group O.

Answer

Answer: d

---

8. What does the progeny of a tall plant with round seeds and a short plant with wrinkled seeds look like?
(a) All are tall with round seeds.
(b) All are short with round seeds.
(c) All are tall with wrinkled seeds.
(d) All are short with wrinkled seeds.

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Answer

Answer: a

---

9. If a round, green seeded pea-plant (RRyy) is crossed with a wrinkled yellow seeded pea- plant (rrYY), the seeds produced in F_1 generation are

(a) round and green (b) round and yellow
(c) wrinkled and green
(d) wrinkled and yellow

Answer

Answer: b

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10. The human species has genetic roots in
(a) Australia
(b) Africa
(c) America
(d) Indonesia

Answer

Answer: b

---

11. Which of the following is the ancestor of 'Broccoli'?
(a) Cabbage
(b) Cauliflower
(c) Wild cabbage
(d) Kale

Answer

Answer: c

---

12. The process of evolution of a species whereby characteristics which help individual organisms to survive and reproduce are passed on to their offspring and those characteristics which do not help are not passed on is called
(a) Artificial selection
(b) Speciation
(c) Hybridization
(d) Natural selection

Answer

Answer: d

---

13. Identify the two organisms which are now extinct and are studied from their fossils.
(a) white tiger and sparrow
(b) dinosaur and fish (Knightia)
(c) ammonite and white tiger
(d) trilobite and white tiger

Answer

Answer: b

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14. Which of the following decides the sex of the child?
(a) male gamete, i.e., sperm
(b) female gamete, i.e., ovum
(c) both sperm and ovum
(d) mother

Answer

Answer: a

---

15. Pure-bred pea plant A is crossed with pure¬bred pea plant B. It is found that the plants which look like A do not appear in Fj gene¬ration but re-emerge in F2 generation. Which of the plants A and B are tall and dwarf?
(a) A are tall and B are dwarf.
(b) A are tall and B are also tall.
(c) A are dwarf and B are also dwarf
(d) A are dwarf and B are tall

Answer

Answer: d

---

16. In humans if gene B gives brown eyes and gene b gives blue eyes, what will be the colour of eyes of the persons having combinations
(i) Bb and (ii) BB?
(a) (i) Blue and (ii) Brown
(b) (i) Brown and (ii) Blue
(c) (i) Brown and (ii) Brown
(d) (i) Blue and (ii) Blue

Answer

Answer: c

---

17. A cross between two individuals results in a ratio of 9 : 3 : 3 :1 for four possible phenotypes of progeny. This is an example of a
(a) Monohybrid cross
(b) Dihybrid cross
(c) Test cross
(d) F1 generation

Answer

Answer: b

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18. Which of the following characters can be acquired but not inherited?
(a) Colour of skin
(b) Size of body
(c) Colour of eyes
(d) Texture of hair

Answer

Answer: b

---

19. Those organs which have the same basic structure but different functions are called
(a) Vestigial organs
(b) Analogous organs
(c) Homologous organs
(d) None of these

Answer

Answer: c

---

20. Those organs which have different basic structure but have similar appearance and perform similar functions are called
(a) Analogous organs
(b) Homologous organs
(c) Vestigial organs
(d) None of these

Answer

Answer: a

---

21. The remaps (or impressions) of dead animals or plant? that lived in the remote past are known as
(a) extinct species
(b) fossils
(c) naturally selected species
(d) none of the above

Answer

Answer: b

---

22. The process by which new species develop from the existing species is known as
(a) Evolution
(b) Natural selection
(c) Artificial selection
(d) Speciation

Answer

Answer: d

---

23. Which of the following is an example of genetic variation?
(a) One person has a scar, but his friend does not.
(b) One person is older than another.
(c) Reeta eats meat, but her sister Geeta is a vegetarian.
(d) Two children have different eye colours.

Answer

Answer: d

---

24. Differences between organisms in a species are described as variation. Which of the following would you describe as continuous variation?
(a) Hair colour
(b) Eye colour
(c) Weight
(d) Sex

Answer

Answer: c

---

25. The more characteristics two species have in common :
(a) More closely they are related and more recently they had a common ancestors.

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(b) More distantly they are related and more recently they have common ancestors.
(c) More closely they are related and more distantly they have common ancestors.
(d) More distantly they are related and more distantly they have common ancestors.

Answer

Answer: a

---

26. To study the natural phenomenon of inheritance, Mendel selected the pea plants. Which of the following properties were suitable for their studies?
(i) Plants would easily self pollinate or cross-pollinate in nature.
(ii) Plants were easily grown in garden soil with a considerably shorter generation time.
(iii) Pea plants do not require the true-breeding for hybridisation experiments.
(iv) Many parts of the plant such as pod, seed, flower, cotyledons showed distinct phenotypes.
(a) (i), (ii) and (iii).
(b) (ii) and (iv).
(c) (i) and (ii).
(d) (ii), (iii) and (iv).

Answer

Answer: b

---

27. What is the difference between genetic drift and change due to natural selection?
(a) Genetic drift does not require the presence of variation.
(b) Genetic drift never occurs in nature, natural selection does.
(c) Genetic drift does not involve competition between members of a species.
(d) There is no difference.

Answer

Answer: c

---

28. Which concept was not included in Charles Darwin’s theory of Natural Selection?
(a) Struggle for existence
(b) Punctuated equilibrium
(c) Survival of the fittest
(d) Overproduction of offspring.

Answer

Answer: b

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29. Natural selection is called ‘survival of the fittest’. Which of the following statements best describes an organism?
(a) How strong it is compared to other individuals of the same species.
(b) How much food and resources it is able to gather for its offspring.
(c) The ability to adapt to the environment in the niche it occupies.
(d) The number of fertiie offspring it has.

Answer

Answer: c

---

30. Human offspring’s sex is determined
(a) through father’s sex chromosomes.
(b) through mother’s sex chromosomes.
(c) by hormones.
(d) by enzymes.

Answer

Answer: a

---

31. Wild cabbage has evolved into new varieties like cabbage, broccoli and cauliflower by
(a) genetic drift
(b) natural selection
(c) reproductive isolation
(d) artificial selection

Answer

Answer: d

---

32. The fossil remains of Archaeopteryx is a connecting link between
(a) reptiles and mammals
(b) reptiles and bird
(c) fish and amphibian
(d) amphibian and reptile

Answer

Answer: b

---

33. The maleness of a child is determined by
(a) the X chromosome in the zygote
(b) the Y chromosome in zygote

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(c) the cytoplasm of germ cell which determines the sex
(d) sex is determined by chance

Answer

Answer: b

---

34. Some dinosaurs had feathers although they could not fly but birds have feathers that help them to fly. In the context of evolution this means that
(a) reptiles have evolved from birds
(b) there is no evolutionary connection between reptiles and birds
(c) feathers are homologous structures in both the organisms
(d) birds have evolved from reptiles.

Answer

Answer: d

Direction (Q35 to Q39): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.
35. Assertion: When pure breed tall plants are crossed with pure breed short plants, all the plants in F_1 progeny are tall. When the tall plants of F_1 progeny are crossed, short plants re-appear in F_2 progeny.
Reason: Traits are independently inherited.

Answer/Explanation

Answer:
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

36. Assertion: Variation is high in sexually reproducing organisms compared to asexually reproducing organisms.
Reason: Inaccuracies during DN A copying give rise to variation.

Answer/Explanation

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Answer:
Explanation:
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

---

37. Assertion: Acquired trait cannot be passed on from one generation to next generation.
Reason: Inaccuracy during DNA copying of acquired trait is minimum.

Answer/Explanation

Answer:
Explanation:
(c) Assertion is true but the Reason is false.

---

38. Assertion: Human, frog and bird have a common ancestor.
Reason: Limbs of human, bird and frog are homologous.

Answer/Explanation

Answer:
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

39. Assertion: Speciation is the reproductive isolation amongst once interbreeding population.
Reason: Genetic drift, Natural selection and Severe DNA change can cause speciation.

Answer/Explanation

Answer:
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

40. The number of paift(s) of sex chromosomes in the zygote of humans is _____ .

Answer/Explanation

Answer:
Explanation: one

---

41. The theory of evolution of species by natural selection was given by _____ .

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer:
Explanation: Darwin

---

42. Chromosomes are thread like structures in the nucleus of a cell formed of DNA which carriers the _____ .

Answer/Explanation

Answer:
Explanation: genes

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43. _____ genes are those which decide the appearance of an organism only in the presence of another identical gene.

Answer/Explanation

Answer:
Explanation: Recessive

---

44. _____ is the description of genes present in an organism.

Answer/Explanation

Answer:
Explanation: Genotype

---

45. Genes always work in _____ .

Answer/Explanation

Answer:
Explanation: pair

---

46. The cut tail of an mice is an _____ trait.

Answer/Explanation

Answer:
Explanation: acquired

---

47. involution led to tne tormation or a new _____ .

Answer/Explanation

Answer:
Explanation: species

---

48. _____ was the British scientist who proposed that life must have developed

Answer/Explanation

Answer:
Explanation: J.B.S Haldane

---

49. Acquired variations in somatic traits are not passed from generation to generation. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

50. Human height is a trait which shows variations. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

51. Variation decreases the chances of survival of an organism in a changing environment. [True/False]

Answer/Explanation

Answer:
Explanation: False

---

52. Genes controls the development of inherited characterstics such as hair colour, skin colour, etc. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

53. The theory of origin of life on earth proposed by haldane was confirmed by Stanley L. Miller and Harold C Urey. [True/False]

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Answer/Explanation

Answer:
Explanation: True

Direction: Match Column I with Column II.
54.

Column I	Column II
(i) Variation	(A) Reproductive isolation among once inter-breeding population.
(ii) Heredity	(B) Difference in individuals of a species.
(iii) Evolution	(C) Gradual changes to give rise to new species.
(iv) Speciation	(D) Transmission of traits from parents to offsprings.

Answer/Explanation

Answer:
Explanation:
(i) (B)
(ii) (D)
(iii) (C)
(iv) (A)

---

55. Define vanation. [DoE]

Answer/Explanation

Answer:
Explanation:
Variation is defined as the differences in the characters or traits among the individuals of a species.

---

56. All the variationsin a species do not have equal chances of survival. Why? [Foreign 2014]

Answer/Explanation

Answer:
Explanation:
All the variations do not have equal chances of survival as some variations might not be beneficial and would ultimately be eliminated.

---

57. Why variations are more in human beings?

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation:
Because human being reproduce sexually and variation are more in sexually reproducing organisms.

---

58. Name two human traits which show variation.

Answer/Explanation

Answer:
Explanation:
(i) Colours of eye
(ii) Height

---

59. What is a gene?

Answer/Explanation

Answer:
Explanation:
Gene is the unit of inheritance. It is the part of a chromosome which controls the appearance of a set of hereditary characters.

---

60. Name the branch of science that deals with heredity and variation.

Answer/Explanation

Answer:
Explanation: Genetics

---

61. Name the genetic material that is responsible for inheritance of traits

Answer/Explanation

Answer:
Explanation: Gene.

---

62. Where are genes located?

Answer/Explanation

Answer:
Explanation:
Genes are located on DNA present in chromosomes.

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63. Who is the father of Genetics?

Answer/Explanation

Answer:
Explanation:
Gregor Johann Mendel is the father of genetics.

64. Define genetic drift.

Answer/Explanation

Answer:
Explanation:
The change in the frequency of certain genes in a population over generations.

65. What is DNA?

Answer/Explanation

Answer:
Explanation:
Deoxyribonucleic Acid (DNA) is a molecule which carry the hereditary characters or traits in a coded form from one generation to the next in all the organisms.

66. No two individuals are absolutely alike in a population. Why?

Answer/Explanation

Answer:
Explanation:
It is because of the variations which take place during DNA copying.

67. Why do mice whose tails were surgically removed just after birth for generations, continue to produce mice with tails?

Answer/Explanation

Answer:
Explanation:
Because cutting of tail is an acquired trait and is not inherited.

68. What is monohybrid cross?

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer:
Explanation:
The cross between two individuals with one pair of contrasting characters is called monohybrid cross.

---

69. Why is the progeny always tall when a tall pea plant is crossed with a short pea plant?

Answer/Explanation

Answer:
Explanation:
Some genes are dominant and others are recessive. Tallness is a dominant trait and hence the progeny is always tall when crossed with a short plant.

---

70. A Mendelian experiment consisted of breeding pea plants bearing violet flowers with pea plants bearing white flowers. What will be the result in F_1 progeny?

Answer/Explanation

Answer:
Explanation:
All plants in Fj generation will bear violet flowers.

---

71. Write the scientific name of men and garden pea.

Answer/Explanation

Answer:
Explanation:
Men- Homo sapiens Garden pea- Pisum sativum

---

72. Where did life originate on earth?

Answer/Explanation

Answer:
Explanation:
Life originated in the sea water.

---

73. Name the scientist who said life originated from inanimate matter.

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation: J.R.S. Haldane.

---

74. Name any two organisms which are now extinct and are studied from their fossils.

Answer/Explanation

Answer:
Explanation:
Ammonite, trilobite, knightia and Rajasaurus. (any two)

---

75. Give as example where sex determination is regulated hy invironmental factors.

Answer/Explanation

Answer:
Explanation:
In snail, sex is determined by environmental factors such as temperature.

---

76. What is Heredity?

Answer/Explanation

Answer:
Explanation:
It refers to the transmission of characters or traits from the parent to their offspring.

---

77. What determines the sex of a child?

Answer/Explanation

Answer:
Explanation:
Whether a child inherits X chromosome or Y chromosome from father determines the sex of the child.

---

78. What is evolution?

Answer/Explanation

Answer:
Explanation:
Formation of new species due to gradual change over a long period of time.

PRASANTH KUMAR ROYAL'S

79. What do you mean by speciation?

Answer/Explanation

Answer:
Explanation:
Evolution of reproductive isolation among once interbreeding population.

---

80. How can you determine evolutionary relationship?

Answer/Explanation

Answer:
Explanation:
By comparing DNA of different species.

---

80. Both birds and bat have wings. What name is given to this relationship?

Answer/Explanation

Answer:
Explanation: Analogous organs.

---

82. What do you call the organs having same design but different function?

Answer/Explanation

Answer:
Explanation: Homologous organs.

---

83. Will geographical isolation be a major factor in speciation of sexually reproducing animals? How?

Answer/Explanation

Answer:
Explanation:
Yes, because it interrupts the flow of genes between their isolated populations through the gametes.

---

84. The human hand, cat paw and the horse foot, when studied in detail show the same structure of bones and point towards a common origin.
(i) What do you conclude from this?
(ii) What is the term given to such structures?

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Answer/Explanation

Answer:
Explanation:
(i) In course of evolutions they have been modified to perform different functions.
(ii) Homologous organs.

---

85. Name the scientist who proposed the theory of evolution.

Answer/Explanation

Answer:
Explanation: Charles Darwin.

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86. Give one characteristic to show that birds are closely related to dinosaurs.

Answer/Explanation

Answer:
Explanation:
Presence of feathers on birds.

---

87. Is it necessary that homologous structures always have a common ancestor?

Answer/Explanation

Answer:
Explanation:
Yes, it is necessary that homologous structures always have a common ancestor in order to carry out the different activities. Otherwise there cannot be any similarity in basic plan, internal structure, development or origin.

---

88. Name five varieties of vegetables which have been produced from ‘wild cabbage’ by the process of artificial selection.

Answer/Explanation

Answer:
Explanation: Vegetables like cabbage, broccoli, cauliflower, kohlrabi and kale are formed from artificial selection.

---

89. Name the ancestor of brocoli, kale and cabbage.

Answer/Explanation

Answer:
Explanation: Wild cabbage.

---

90. Name the place where human species have genetic roots.

Answer/Explanation

Answer:
Explanation: Africa.

---

91. Explain the term analogous with examples.

Answer/Explanation

Answer:
Explanation:
Analogous organs are those organs which have different basic structural designs and developmental origins but have similar appearance and perform similar functions.
Examples: Wings of an insect and wings of a bat.

---

92. Explain the term homologous with examples.

Answer/Explanation

Answer:
Explanation:
Homologous organs are those organs which have the same basic structural design and developmental origin but have different functions and appearance.
Examples: Forelimbs of frog and forelimbs of human.

Fill in the Blanks

1. The study of the pattern of chromosomes from parents to the offspring is called …….. .
2. The wings of a bird and mosquito are …….. organs.
3. In Mendel's experiment, the trait which did not appear in the F_1 generation was said to be …… .
4. The number of X chromosomes in a human ovum is …….. .
5. …….. proposed the "Theory of Natural Selection".
6. If a sperm carrying 'X' chromosome fertilises an ovum, then the child bom will be a …….. .
7. The process by which new species develop from the existing species is known as …….. .
8. Transitional fossils like …….. is a connecting link between reptiles and birds.

Answers

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Collection of MCQ for Class 10 Science

1. Heredity
2. analogous
3. recessive
4. two
5. Charles Darwin
6. girl
7. speciation
8. Archaeopteryx

Chapter 10 Light Reflection and Refraction

PRASANTH KUMAR ROYAL'S

1. An object is placed at a distance of 0.25 m in front of a plane mirror. The distance between the object and image will be
(a) 0.25 m
(b) 1.0 m
(c) 0.5 m
(d) 0.125 m

Answer/Explanation

Answer: c
Explanation:
(c) Distance between object and image = 0.25 + 0.25 = 0.5 m

---

2. The angle of incidence for a ray of light having zero reflection angle is
(a) 0
(b) 30°
(c) 45°
(d) 90°

Answer/Explanation

Answer: a
Explanation:
(a) For reflecting surface $\angle i = \angle r$

---

3. For a real object, which of the following can produce a real image?
(a) Plane mirror
(b) Concave mirror
(c) Concave lens
(d) Convex mirror

Answer/Explanation

Answer: b
Explanation:
(b) Only concave mirror can produces a real image for the any position of object between its focus and infinity.

---

4. Which of the following mirror is used by a dentist to examine a small cavity?
(a) Convex mirror
(b) Plane mirror
(c) Concave mirror
(d) Combination of convex and concave mirror

Answer/Explanation

Answer: c
Explanation:
(c) Concave mirror forms erect and enlarged image when held close to the cavity.

---

5. An object at a distance of 30 cm from a concave mirror gets its image at the same point. The focal length of the mirror is
(a) – 30 cm
(b) 30 cm
(c) – 15 cm
(d) +15 cm

Answer/Explanation

Answer: c
Explanation:
(c) When object is placed at 2F, the image formed by concave mirror is also at 2F.
So 2F = -30 or F = -15 cm.

---

6. An object at a distance of + 15 cm is slowly moved towards the pole of a convex mirror. The image will get
(a) shortened and real
(b) enlarged and real
(c) enlarge and virtual
(d) diminished and virtual

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: d
Explanation:
(d) Convex mirror always formed virtual and diminished image.

---

7. A concave mirror of radius 30 cm is placed in water. It's focal length in air and water differ by
(a) 15
(b) 20
(c) 30
(d) 0

Answer/Explanation

Answer: d
Explanation:
(d) The focal length of spherical mirror does not depends on the surrounding medium.

---

8. A concave mirror of focal length 20 cm forms an image having twice the size of object. For the virtual position of object, the position of object will be at
(a) 25 cm
(b) 40 cm
(c) 10 cm
(d) At infinity

Answer/Explanation

Answer: c
Explanation:
(c) For virtual image,

$$m = -\frac{v}{u} = +2 \Rightarrow v = -2u$$

$$\text{As} \quad \frac{1}{u} + \frac{1}{v} = \frac{1}{f}$$

$$\therefore \quad \frac{1}{u} + \frac{1}{-2u} = \frac{1}{-20}$$

$$\Rightarrow \quad \frac{1}{2u} = \frac{1}{-20}$$

$$\Rightarrow \quad u = -10 \text{ cm}$$

---

9. The image formed by concave mirror is real, inverted and of the same size as that of the object. The position of object should be
(a) at the focus

PRASANTH KUMAR ROYAL'S

(b) at the centre of curvature
(c) between focus and centre of curvature
(d) beyond centre of curvature

Answer/Explanation

Answer: c
Explanation:
(c) When object lies at C of a concave mirror, image is also formed at ‘C’ and having same size real and inverted.

---

10. The nature of the image formed by concave mirror when the object is placed between the focus (F) and centre of curvature (C) of the mirror observed by us is
(a) real, inverted and diminished
(b) virtual, erect and smaller in size
(c) real, inverted and enlarged
(d) virtual, upright and enlarged

Answer/Explanation

Answer:
Explanation:
(c) When object lies between C and F, the real, inverted and enlarged image is formed beyondC.

---

11. The nature of image formed by a convex mirror when the object distance from the mirror is less than the distance between pole and focal point (F) of the mirror would be
(a) real, inverted and diminished in size
(b) real, inverted and enlarged in size
(c) virtual, upright and diminished in size
(d) virtual, upright and enlarged in size

Answer/Explanation

Answer:
Explanation:
(c) Convex mirror always forms a virtual, erect diminished image irrespective of the position of object in front of it.

---

12. If a man’s face is 25 cm in front of concave shaving mirror producing erect image 1.5 times the size of face, focal length of the mirror would be
(a) 75 cm
(b) 25 cm

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(c) 15 cm
(d) 60 cm

Answer/Explanation

Answer: a
Explanation:
(a) In concave shaving mirror, virtual erect and large size image, behind the mirror is obtained, using

$$m = -\frac{v}{u} \Rightarrow 1.5 = -\frac{v}{-25}$$
$$\Rightarrow v = \frac{75}{2} \text{ cm}$$
Now, from mirror formula,
$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u} = \frac{1}{75/2} + \frac{1}{-25} = -\frac{1}{75}$$
$$\therefore f = -75 \text{ cm}$$

Hence, focal length of concave mirror is 75 cm.

---

13. As light travels from a rarer to a denser medium it will have
(a) increased velocity
(b) decreased velocity
(c) decreased wavelength
(d) both (b) and (c)

Answer/Explanation

Answer:
Explanation:
(d) When light ray travel from rarer to denser medium, its velocity and wavelength both decrease as $v = v\lambda$.

---

14. The angle of incidence i and refraction r are equal in a transparent slab when the value of i is
(a) 0°
(b) 45°
(c) 90°
(d) depend on the material of the slab

Answer/Explanation

Answer:
Explanation:

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(a) When the incident ray falls normally on the glass slab, it will refracted without deviation, i.e. along the normal in the glass slab. So, $\angle i = \angle r = 0$

---

15. The refractive index of transparent medium is greater than one because
(a) Speed of light in vacuum < speed of light in tansparent medium (b) Speed of light in vacuum > speed of light in tansparent medium
(c) Speed flight in vacuum = speed of light in tansparent medium
(d) Frequency of light wave changes when it moves from rarer to denser medium

Answer/Explanation

Answer: b
Explanation:

$$(b)\ \mu = \frac{\text{Speed of light in vacuum}}{\text{Speed of light in medium}}$$

As $c > v$ so, $\mu > 1$.

---

16. The refractive index of water is 1.33. The speed of light in water will be
(a) 1.33×10^8 m/s
(b) 3×10^8 m/s
(c) 2.26×10^8 m/s
(d) 2.66×10^8 m/s

Answer/Explanation

Answer: c
Explanation:

$$(c)\ \text{As } \mu = \frac{c}{\mu}$$

$$\Rightarrow v = \frac{c}{\mu} = \frac{3 \times 10^8}{1.33} = 2.26 \times 10^8 \text{ m/s}$$

---

17. You are given three media A, B and C of refractive index 1.33, 1.65 and 1.46. The medium in which the light will travel fastest is
(a) A
(b) B
(c) C
(d) equal in all three media

Answer/Explanation

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Answer: b
Explanation:

(a) As, ${}_a\mu_m = \frac{v_a}{v_m}$ or $v_m = \frac{v_a}{{}_a\mu_m}$

So, the light will travel faster in a medium having lower refractive index.

---

18. Light from the Sun falling on a convex lens will converge at a point called
(a) centre of curvature
(b) focus
(c) radius of curvature
(d) optical centre

Answer/Explanation

Answer: b
Explanation:
(b) The parallel ray coming from the sun, after refraction through the convex lens converge at its focus.

---

19. Large number of thin stripes of black paint are made on the surface of a convex lens of focal length 20 cm to catch the image of a white horse. The image will be
(a) a zebra of black stripes
(b) a horse of black stripes
(c) a horse of less brightness
(d) a zebra of less brightness

Answer/Explanation

Answer: c
Explanation:
(c) Complete image of the white horse is formed but of less intensity, the light falling on the curved portion will not react at the image position.

---

20. A divergent lens will produce
(a) always real image
(b) always virtual image
(c) both real and virtual image
(d) none of these

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: b
Explanation:
(b) Diverging (concave) lens will always forms a virtual, erect and diminished image.

---

21. When object moves closer to convex lens, the image formed by it shift
(a) away from the lens
(b) towards the lens
(c) first towards and then away from the lens
(d) first away and then towards the lens

Answer/Explanation

Answer: a
Explanation:
(a) As object moves from infinity towards optical centre of the convex lens image is shifted away from its focal point and towards infinity.

---

22. When object moves closer to a concave lens the image by it shift
(a) away from the lens on the same side of object
(b) toward the lens
(c) away from the lens on the other side of lens
(d) first towards and then away from the lens

Answer/Explanation

Answer: b
Explanation:
(b) When object infinity, image is formed at the focus of concave lens of object is moved towards lens, the image is also moved from its focus towards lens and its size increase.

---

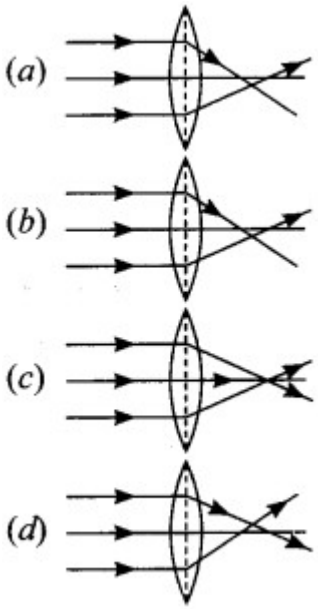
23. A magnified real image is formed by a convex lens when the object is at
(a) F
(b) between F and 2F
(c) 2F
(d) only (a) and (b) both

Answer/Explanation

Answer: d
Explanation:
(d) When object is at 2F, real inverted and same size image is formed by convex lens. So, according to question option (a) and (b) both are correct.

PRASANTH KUMAR ROYAL'S

24. The distance between the potical centre and point of convergence is called focal length in which of the following cases?



Answer/Explanation

Answer: c
Explanation:
(c) Parallel rays after refiracting meet at the focus of a convex lens.

---

25. A10 mm long awl pin is placed vertically in front of a concave mirror. A 5 mm long image of the awl pin is formed at 30 cm in front of the mirror. The focal length of this mirror is
(a) – 30 cm
(b) – 20 cm
(c) – 40 cm
(d) – 60 cm

Answer/Explanation

Answer: b
Explanation:
(b) Given h_0 = +10 mm = + 0.1 cm

h_2 = – 5 mm = -0.5 cm

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for real image, v = – 30 cm

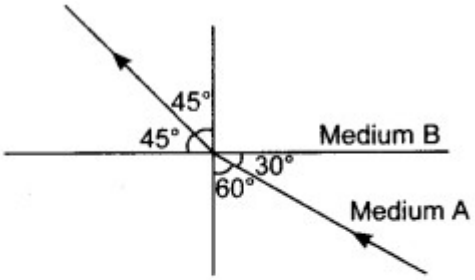
Now, magnification, $m = \frac{h_i}{h_o} = -\frac{v}{u}$

$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u} = \frac{1}{-30} + \frac{1}{-60} = \frac{-2-1}{60} = -\frac{1}{20}$$

$\therefore \quad f = -20$ cm

---

26. Figure shows a ray of light as it travels from medium A to medium B. Refractive index of the medium B relative to medium A is



(a) $\frac{\sqrt{3}}{\sqrt{2}}$ (b) $\frac{\sqrt{2}}{\sqrt{3}}$

(c) $\frac{1}{\sqrt{2}}$ (d) $\sqrt{2}$

Answer/Explanation

Answer: a
Explanation:
(a) Here, $\angle i = 60°$, $\angle r = 45°$
Using Snell's law of refraction, refractive index of medium B with respect to medium A.

$$_{A}n_{B} = \frac{\sin i}{\sin r} = \frac{\sin 60°}{\sin 45°} = \frac{(\sqrt{3}/2)}{(1/\sqrt{2})} = \frac{\sqrt{3}}{\sqrt{2}}$$

---

27. A light ray enters from medium A to medium B as shown in figure. The refractive index of medium B relative to A will be

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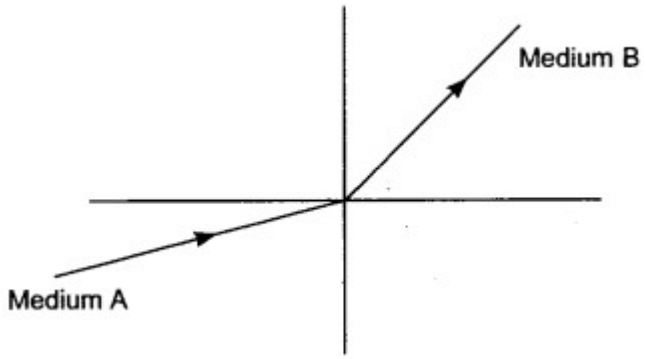


(a) greater than unity
(b) less than unity
(c) equal to unity
(d) zero

Answer/Explanation

Answer: b
Explanation:
(b) In medium B, light ray bends away from the normal. It indicates that medium B is optically rarer than medium A. Hence speed of light in medium B is more than that in medium A.
Now, refractive index

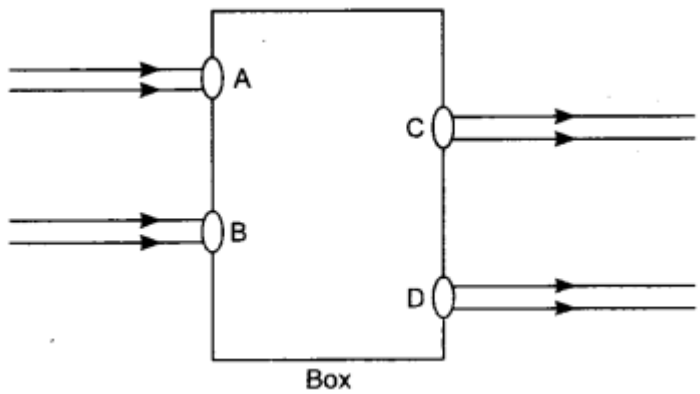
$$_{A}n_{B} = \frac{v_A}{v_B}$$

$$\text{As } v_B > v_A \Rightarrow \frac{v_B}{v_A}$$

$$\therefore \quad _{A}n_{B} < 1$$

---

28. Beams of light are incident through the holes A and B and emerge out of box through the holes C and D respectively as shown in the figure. Which of the following could be inside the box?



(a) A rectangular glass slab
(b) A convex lens .

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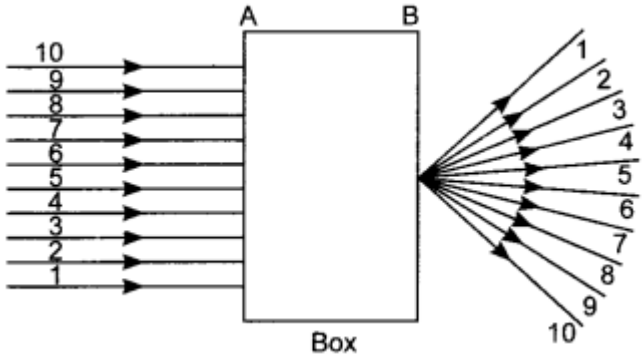
(c) A concave lens
(d) A prism

Answer/Explanation

Answer: a
Explanation:
(a) Figure shows that emergent ray are parallel to the incedent ray and shifted side ward slightly. This can be done by the rectangular glass slab only.

---

29. A beam of light is incident through the holes on side A and emerges out of the hole on the other face of the box as shown in the figure. Which of the following could be inside the box?
(a) Concave lens
(b) Rectangular glass slab
(c) Prism
(d) Convex lens



Answer/Explanation

Answer: d
Explanation:
(d) From figure, it is clear that parallel rays converge at a point and emerges from face B. So convex lens would be possible inside the box.

---

30. Which of the following statements is/are true?
(a) A convex lens has 4 dioptre power having a focal length 0.25 m
(b) A convex lens has -4 dioptre power having a focal length 0.25 m
(c) A concave lens has 4 dioptre power having a focal length 0.25 m
(d) A concave lens has – 4 dioptre having a focal 0.25 m

Answer/Explanation

Answer: a
Explanation:

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(a) Positive sign with power and focal length indicates that the given lens is convex.
Also f = \(\frac{1}{P}=\frac{1}{4}\) = 0.25m

---

31. Magnification produced by a rear view mirror fitted in vehicles
(a) is less than one
(b) is more than one
(c) is equal to one
(d) can be more than or less than one depending upon the position of the object in front of it.

Answer/Explanation

Answer: a
Explanation:
(a) Convex mirror is used as rear view mirror and alway forms virtual, erect and diminished inage. So magnification produced by a rear view mirror is less than one.

---

32. A full length image of a distant tall building can definitely be seen by using
(a) a concave mirror
(b) a convex mirror
(c) a plane mirror
(d) both concave as well as plane mirror

Answer/Explanation

Answer: b
Explanation:
(b) Convex mirror has a wide field of view as it forms virtual, erect and diminished image. Hence, fall length of image of distance tall building can definitely be seen by using it.

---

33. In torches, search lights and headlights of vehicles the bulb is placed
(a) between the pole and the focus of the reflector
(b) very near to the focus of the reflector
(c) between the focus and centre of curvature of the reflector
(d) at the centre of curvature of the reflector

Answer/Explanation

Answer: b
Explanation:
(b) When source of light is placed verg near to the focus of the reflector which are concave in shape, the reflected light becomes parallel to the principal axis.

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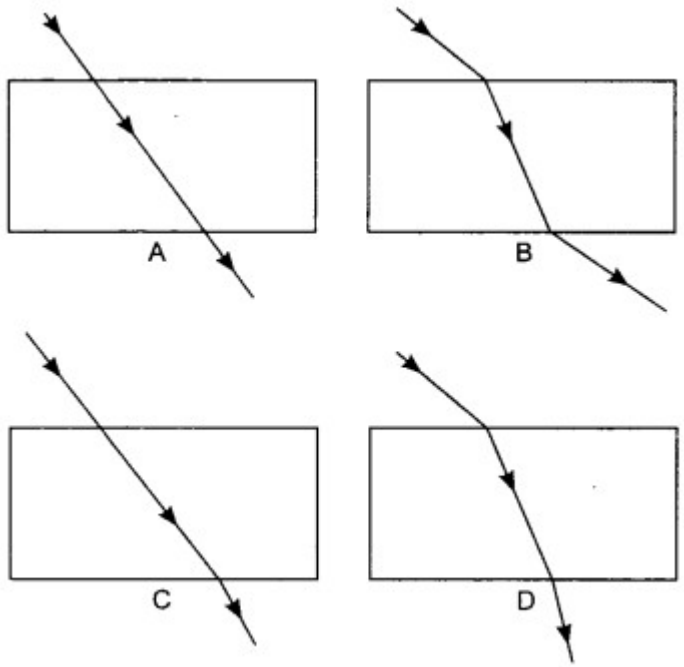
34. The laws of reflection hold good for
(a) plane mirror only
(b) concave mirror only
(c) convex mirror only
(d) all mirrors irrespective of their shape

Answer/Explanation

Answer: d
Explanation:
(d) The laws of reflection hold good for light reflected from any smooth surface irrespective of their shapes.

---

35. The path of a ray of light coming from air passing through a rectangular glass slab traced by four students are shown as A, B, C and D in figure. Which one of them is correct?



(a) A
(b) B
(c) C
(d) D

Answer/Explanation

Answer: b
Explanation:

PRASANTH KUMAR ROYAL'S

(b) When a light ray is incident oblikely on one face of rectangular glass slab, the emergent ray will be parallel to the incident ray and shifted sideward slightly.

---

36. In which of the following, the image of an object placed at infinity will be highly diminished and point sized?
(a) Concave mirror only
(b) Convex mirror only
(c) Convex lens only
(d) Concave mirror, convex mirror, concave lens and convex lens.

Answer/Explanation

Answer: d
Explanation:
(d) The incident ray coming from the object placed at infinity will be parallel to the principal axis. When the parallel beam of light incident on a mirror or lens, irrespective of their nature, after reflection/refraction, will pass or appear to pass through their principal focus. Hence highly diminished and point size image will be formed at their focus.

---

37. When light falls on a smooth polished surface, most of it
(a) is reflected in the same direction
(b) is reflected in different directions
(c) is scattered
(d) is refracted into the second medium

Answer

Answer: a

---

38. Image formed by reflection from a plane mirror is
(a) real and inverted
(b) virtual and erect
(c) real and erect
(d) virtual and inverted

Answer

Answer: b

---

39. If an incident ray passes through the focus, the reflected ray will
(a) pass through the pole
(b) be parallel to the principal axis

PRASANTH KUMAR ROYAL'S

(c) retrace its path
(d) pass through the centre of curvature

Answer

Answer: b

---

40. Magnifying power of a concave lens is
(a) always > 1
(b) always < 1
(c) always = 1
(d) can have any value

Answer

Answer: b

---

41. The image formed by a convex lens can be
(a) virtual and magnified
(b) virtual and diminished
(c) virtual and of same size
(d) virtual image is not formed

Answer

Answer: a

---

42. A point object is placed at a distance of 20 cm from a convex mirror of focal length 20 cm. The image will form at:
(a) at infinity
(b) at focus
(c) at the pole
(d) behind the mirror

Answer

Answer: d

---

43. Focal length of a concave mirror is
(a) negative
(b) positive
(c) depends on the position of object
(d) depends on the position of image

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Answer

Answer: a

---

44. If the power of a lens is – 2 D, what is its focal length?
(a) +50 cm
(b) -100 cm
(c) -50 cm
(d) +100 cm

Answer

Answer: c

---

45. A spherical mirror and a spherical lens each have a focal length of -10 cm. The mirror and the lens are likely to be
(a) both concave
(b) both convex
(c) the mirror is concave and the lens is convex
(d) the mirror is convex and the lens is concave

Answer

Answer: a

---

46. If the magnification produced by a lens has a negative value, the image will be
(a) virtual and inverted
(b) virtual and erect
(c) real and erect
(d) real and inverted

Answer

Answer: b

---

47. When the object is placed between f and 2f of a convex lens, the image formed is
(a) at f
(b) at 2f
(c) beyond 2f
(d) between O and f

Answer

Answer: c

PRASANTH KUMAR ROYAL'S

48. Which mirroji can produce a virtual, erect and magnified ifhage of an object?
(a) Concave mirror
(b) Convex mirror
(c) Plane mirror
(d) Both concave and convex mirrors

Answer

Answer: a

---

49. If the image is formed in front of the mirror, then the image distance will be
(a) positive or negative depending on the size of the object
(b) neither positive nor negative
(c) positive
(d) negative

Answer

Answer: d

---

50. A ray of light is travelling from a rarer medium to a denser medium. While entering the denser medium at the point of incidence, it
(a) goes straight into the second medium
(b) bends towards the normal
(c) bends away from the normal
(d) does not enter at all

Answer

Answer: b

---

51. A student does the experiment on tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. He can get a correct measure of the angle of incidence and the angle of emergence by following the labelling indicated in figure:

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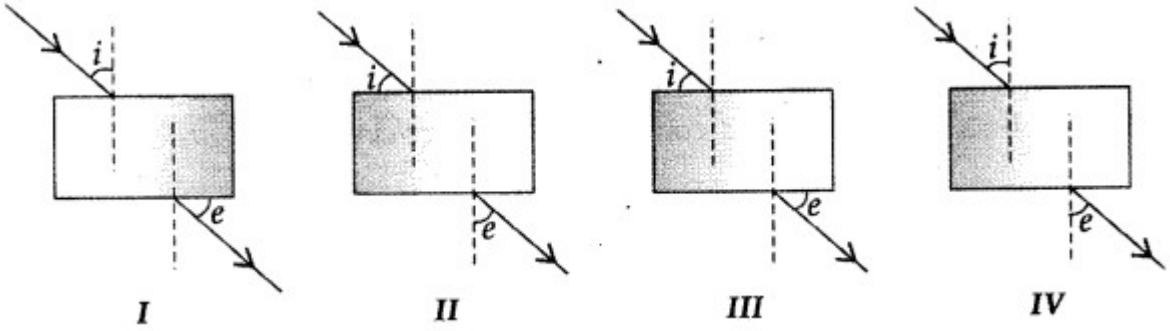


(a) I
(b) II
(c) III
(d) IV

Answer

Answer: d

Direction (Q52 to Q56): The questions given below consist of an assertion and the reason. Use the following key to choose the appropriate answer.
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.
52. Assertion: Incident light is reflected in only one direction from a smooth surface.
Reason: Since the angle of incidence and the angle of reflection are same, a beam of parallel rays of light falling on a smooth surface is reflected as a beam of parallel light rays in one direction only.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

53. Assertion: The word AMBULANCE on the hospital vans is written in the form of its mirror as

Reason: The image formed in a plane mirror is same size of the oblect.

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: b
Explanation:
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

---

54. Assertion: Cannot see the distant object clearly.
Reason: The far point of an eye suffering j, from myopia is less than infinity.

Answer/Explanation

Answer: b
Explanation:
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

---

55. Assertion: Pupil is black in colour.
Reason: Pupil is black in colour as no light is reflected in it.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

56. Assertion: The rainbow is a man made spectrum of sunlight in the sky.
Reason: The rainbow is formed in the sky when the sun is shining and it is raining at the same time.

Answer/Explanation

Answer: a
Explanation:
(a) The statement of the Assertion is false but the Reason is true.

---

57. _____ mirror is used as a security mirror in shops and on roads at sharp bends and concealed entrances.

Answer/Explanation

Answer:
Explanation: Convex

PRASANTH KUMAR ROYAL'S

58. The refractive index of a transparent medium is the ratio of the speed of light in _____ to that in the _____ .

Answer/Explanation

Answer:
Explanation: vacuum, medium

---

59. If the magnification has a minus sign, then the image is _____ and _____ .

Answer/Explanation

Answer:
Explanation: real, inverted

---

60. The focal length of a lens is the distance between _____ and _____ of the lens.

Answer/Explanation

Answer:
Explanation: optical centre, principal focus

---

61. The focal length of a concave lens is considered to be _____ .

Answer/Explanation

Answer:
Explanation: negative

---

62. In order to calculate the power of a lens, we need its focal length in _____ .

Answer/Explanation

Answer:
Explanation: metres

---

63. Angle of refraction cannot exceed 90°. [True/False]

Answer/Explanation

Answer:
Explanation: True

PRASANTH KUMAR ROYAL'S

64. When incident angle i satisfies n = \(\frac{1}{\sin i}\), the refracted light will pass along the surface. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

65. A person standing in front of a mirror finds his image larger than himself. This shows that mirror is convex in nature. [True/False]

Answer/Explanation

Answer:
Explanation: False
Convex mirror always forms a diminished image so it is false statement.

$$-\frac{v}{u} = \frac{1}{m} \quad \Rightarrow \quad v = -\frac{u}{m}$$

$$\text{Using, } \frac{1}{f} = \frac{1}{v} + \frac{1}{u} = -\frac{m}{v} + \frac{1}{v} = -\frac{(m-1)}{v}$$

$$\therefore \quad u = -(m-1)f$$

i.e., the object distance from the mirror is numerically equal to (m – 1)f.

---

66. Lateral displacement increases with the thickness of the given slab. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

67. Lateral displacement is directly proportional to thickness of the glass slab. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

68. Nature of image formed by mirror gives an ideal about nature of mirror. [True/False]

Answer/Explanation

Answer:
Explanation: True

PRASANTH KUMAR ROYAL'S

---

69. A convex lens ($n_g = 3/2$) when placed in water ($n_w = 4/3$) has increased focal length [True/False]

Answer/Explanation

Answer:
Explanation: True

---

70. A convex and a concave lens of equal focal length behaves as a regular glass slab receiving light normally. [True/False]

Answer/Explanation

Answer:
Explanation: False

---

71. Concave lens and convex mirror diverge the rays which fall parallel to the principal axis. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

72. The power of a concave lens is positive. [True/False]

Answer/Explanation

Answer:
Explanation: False

Direction: Match Column I with Column II.
73.

Column I	Column II
(i) Ray through centre of curvature	(A) Reflected parallel to principal axis
(ii) Ray through focus	(B) Converge at focus
(iii) Rays from infinite distance	(C) Emerge through focus
(iv) Refracted rays to infinity	(D) Retracing in mirrors

Answer/Explanation

Answer:
Explanation:
(i) → (D), (ii) → (A), (iii) → (B), (iv) → (C)

PRASANTH KUMAR ROYAL'S

(i) → (D): For this ray Zi = Zr = 0
(ii) → (A): The ray of light passing through the focus will emerge parallel to the principal axis after reflection.
(iii) → (B): When object is at infinity, the image is formed at the focus of a concave mirror.
(iv) → (C): A ray from the object parallel to principal axis will pars through the principal . focus after refraction in a convex lens.

---

74. What is light?

Answer/Explanation

Answer:
Explanation:
Light is a form of energy. It brings the sensation of sight. It is a form of electromagnetic radiation. It also provides us means of communication (fibre-optics).

---

75. Write any one observation from everyday life which show us that light travels in a straight line.

Answer/Explanation

Answer:
Explanation:
A small source of light costs a sharp shadow of an opaque object tells us that light travels in a straight line.

---

76. What is a ray?

Answer/Explanation

Answer:
Explanation:
Ray is a line defining the path of light.

---

77. What is beam?

Answer/Explanation

Answer:
Explanation:
A bundle of rays originating from the same source of light in a particular direction is called beam of light.

PRASANTH KUMAR ROYAL'S

78. Explain why a ray of light passing through the centre of curvature of a concave mirror, gets reflected along the same path.

Answer/Explanation

Answer:
Explanation:
The ray passing through the centre of curvature incident to the mirror along its normal, so $\angle i = \angle r = 0$. Therefore, the ray retraces its path.

---

79. Is light a ray or a wave?

Answer/Explanation

Answer:
Explanation:
It is considered in both the forms.

---

80. What are the characters associated with light as a wave?

Answer/Explanation

Answer:
Explanation:
Frequency and wavelength.

---

81. What is Spherical mirror?

Answer/Explanation

Answer:
Explanation:
A reflecting surface which is of the form of a sphere (hollow) in which inner or outer surface is reflecting.

---

82. What is the relation connecting focal length and radius of a spherical mirror?

Answer/Explanation

Answer:
Explanation: F = \(\frac{R}{2}\)

---

83. Can any spherical surface act as a reflector?

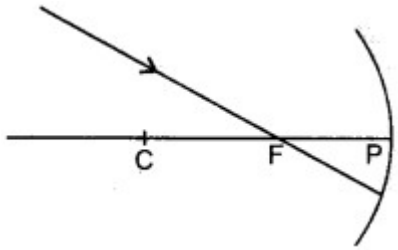
PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer:
Explanation:
Yes, polished surface can be better reflectors.

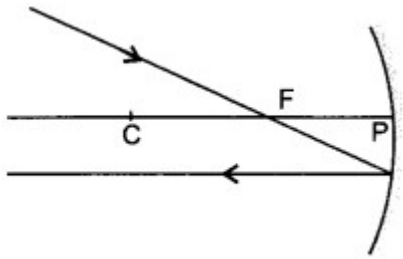
---

84. Redraw the diagram given below in your answer book and show the direction of the light ray after reflection from the mirror.



Answer/Explanation

Answer:
Explanation:



---

85. For what position of object, a concave mirror forms a real image equal to size of object?

Answer/Explanation

Answer:
Explanation:
When object is placed at the centre of curvature (C) same size real image is formed by concave mirror.

---

86. A concave mirror forms a sharp image of a distant tree. What name is given to the distance between the concave mirror and screen on which sharp image is formed?

Answer/Explanation

Answer:
Explanation: Focal length.

PRASANTH KUMAR ROYAL'S

87. In what condition, the image formed by a concave mirror is virtual?

Answer/Explanation

Answer:
Explanation:
When the object is placed between the focus and the pole of a concave mirror, a virtual image is obtained.

88. Specified the size of image formed by a concave mirror when m > 1.

Answer/Explanation

Answer:
Explanation: The image is enlarged.

89. Name the mirror that can be used to check theft in shops.

Answer/Explanation

Answer:
Explanation: Convex mirror.

90. What is the position of the object placed on the side of reflecting surface of a concave mirror of focal length 15 cm if the image is formed at the distance of 30 cm from the mirror?

Answer/Explanation

Answer:
Explanation: 30 cm

91. Which mirror, concave or convex always converges the light rays?

Answer/Explanation

Answer:
Explanation: Concave mirror.

92. For what position of the object does a concave mirror forms a real image which is highly enlarged?

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation: At F.

---

93. When object is placed at centre of centre of curvature of concave mirror, where is the image formed?

Answer/Explanation

Answer:
Explanation: At C.

---

94. What focal length can be assigned to a plane mirror?

Answer/Explanation

Answer:
Explanation: Infinity.

---

95. Size of the image formed on a concave mirror is highly diminished, state the position of object and image.

Answer/Explanation

Answer:
Explanation:
Position of object: at infinity Position of image : at the focus F

Fill in the Blanks

1. Light shows the phenomena of reflection, refraction and ……. .
2. The speed of light in vacuum is ……. .
3. Power of' a lens is the ……. of its focal length.
4. The SI unit of power is ……. .
5. A ……. lens will always give a virtual, erect and diminished image, irrespective of the position of the object.
6. A positive sign in the value of magnification indicates that the image is ……. .
7. A ……. mirror is used as a head mirror by the doctors to concentrate light on the body parts to be examined.
8. No matter how far you stand from a spherical mirror, your image appears erect. The mirror may be ……. .

Answers

PRASANTH KUMAR ROYAL'S

1. dispersion
2. 3 x 108 m/s
3. reciprocal
4. dioptre
5. concave
6. virtual
7. concave
8. plane or convex mirror .

Chapter 11 Human Eye and Colourful World

PRASANTH KUMAR ROYAL'S

1.The muscular diaphragm that controls the size of the pupil is
(a) cornea
(b) ciliary muscles
(c) iris
(d) retina

Answer/Explanation

Answer: c
Explanation:
(c) Iris control the size of pupil.

---

2. Having two eyes facilitates in
A : Increasing the field of view
B : Bringing three-dimensional view
C : Developing the concept of distance/ size

Then the correct option is/are
(a) A only
(b) A and B only
(c) B only
(d) A, B and C

Answer

Answer: d

---

3. The black opening between the aqueous humour and the lens is called
(a) retina
(b) iris

(c) cornea
(d) pupil

Answer/Explanation

Answer: d
Explanation:
(d) The black opening between the aqueous humour and the eye lens is called pupil.

---

4. Near and far points of a young person normal eye respectively are
(a) 0 and infinity
(b) 0 and 25 cm
(c) 25 cm and infinity
(d) 25 cm and 150 cm.

Answer/Explanation

Answer: c
Explanation:
(c) Near point = 25 cm while far point = infinity.

---

5. The defect of vision in which the person is able to see distant object distinctly but cannot see nearby objects clearly is called
(a) Long-sightedness
(b) Far-sightedness
(c) Hypermetropia
(d) All above

Answer/Explanation

Answer: d
Explanation:
(d) Hypermetropia is also called long-sightedness or far-sightedness.

---

6. The ability of eye lens to adjust its focal length to form a sharp image of the object at varying distances on the retina is called
(a) Power of observation of the eye
(b) Power of adjustment of the eye
(c) Power of accommodation of the eye
(d) Power of enabling of the eye

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: c
Explanation:
(c) It is called power of accommodation of the eye.

---

7. Myopia and hypermetropia can be corrected by
(a) Concave and plano-convex lens
(b) Concave and convex lens
(c) Convex and concave lens
(d) Plano-concave lens for both defects.

Answer/Explanation

Answer: b
Explanation:
(b) Myopia is corrected by using of suitable power of concave lens while hypermetropia is corrected by convex lens.

---

8. Bi-focal lens are required to correct
(a) astigmatism
(b) coma
(c) myopia
(d) presbyopia

Answer/Explanation

Answer: d
Explanation:
(d) Bifocal lens are required to correct the presbyopia. Upper point of bifocal lens consists of concave lens used for distant vision while lower point consists of convex lens facilitate near vision.

---

9. The defective eye of a person has near point 0.5 m and point 3 m. The power far corrective lens required for
(i) reading purpose and
(ii) seeing distant objects, respectively are:
(a) 0.5 D and +3D
(b) +2D and – $\frac{1}{3}$ D
(c) – 2D and + $\frac{1}{3}$D
(d) 0.5 D and-3.0 D

Answer/Explanation

Answer: b
Explanation:

PRASANTH KUMAR ROYAL'S

(b) For reading purpose

$u = -25$ cm, $v = 0.5$ m $= -50$ cm, $f = ?$ P = ?

Using, $\frac{1}{f} = \frac{1}{v} - \frac{1}{u} = \frac{1}{-50} - \frac{1}{-25} = \frac{1}{50}$

$\therefore$ P $= \frac{100}{f(\text{cm})} = 100 \times \frac{1}{50} = +2$ D

For distant objects

$u = \infty$, $v = -3$ m, $f = ?$ P = ?

$\frac{1}{f} = \frac{1}{v} - \frac{1}{u} = \frac{1}{-3} - \frac{1}{\infty} = -\frac{1}{3}$

$\therefore$ P $= \frac{1}{f(\text{m})} = -\frac{1}{3}$D

---

10. The image formed on the retina of the human eye is
(a) virtual and inverted
(b) real and inverted
(c) real and erect
(d) virtual and erect

Answer/Explanation

Answer: b
Explanation:
(b) Eye lens is convex in nature. So, image formed by it on the retina is real and inverted.

---

11. When white light enters a prism, it gets split into its constituent colours. This is due to
(a) different refractive index for different wavelength of each colour
(b) each colours has same velocity in the prism.
(c) prism material have high density.
(d) Scattering of light

Answer/Explanation

Answer: a
Explanation:
(a) Dispersion takes place because refractive index of the material of prism is different for different wavelength.

PRASANTH KUMAR ROYAL'S

12. The air layer of atmosphere whose temperature is less then the hot layer behave as optically
(a) denser medium
(b) rarer medium
(c) inactive medium
(d) either denser or rarer medium

Answer/Explanation

Answer: a
Explanation:
(a) The cold air layer of the atmosphere acts as a optically denser medium than hot air because the molecules are closely packed together.

PRASANTH KUMAR ROYAL'S

13. Refraction of light by the earth's atmosphere due to variation in air density is called
(a) atmospheric reflection
(b) atmospheric dispersion
(c) atmospheric scattering
(d) atmospheric refraction

Answer/Explanation

Answer: d
Explanation:
(d) This phenomena is called atmospheric refraction.

---

14. The deflection of light by minute particles and molecules of the atmosphere in all direction is called _____ of light.
(a) dispersion
(b) scattering
(c) interference
(d) tyndell effect

Answer/Explanation

Answer: b
Explanation:
(b) The said phenomenon is called scattering of light.

---

15. One cannot see through the fog, because
(a) refractive index of the fog is very high
(b) light suffers total reflection at droplets
(c) fog absorbs light
(d) light is scattered by the droplets

Answer/Explanation

Answer: d
Explanation:
(d) Objects are not visible through the fog because droplets scatter the light rays.

---

16. A person cannot see distinctly objects kept beyond 2 m. This defect can be corrected by using a lens of power
(a) + 0.5 D
(b) – 0.5 D
(c) + 0.2 D
(d) – 0.2 D

Answer/Explanation

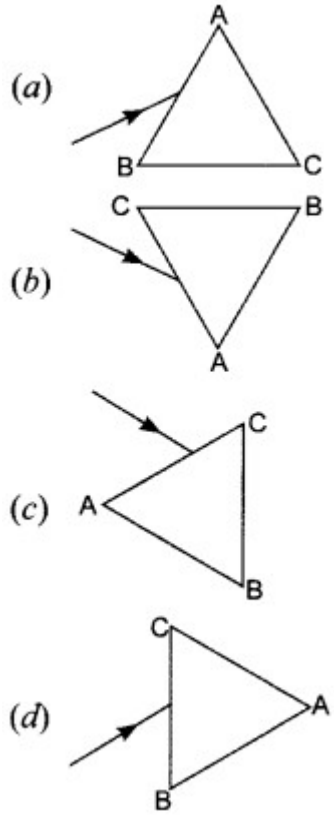
Answer: b
Explanation:
(b) Person cannot see distant objects clearly. So he is suffering from myopia. The defect is corrected by using concave lens of power
P = \(\frac{1}{f}=\frac{1}{-2 m}\) =-0.5

---

17. A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in figure. In which of the following cases, after dispersion, the

PRASANTH KUMAR ROYAL'S

third colour from the top corresponds to the colour of the sky?



PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer: b
Explanation:
(b) In figure (a) base BC of the prism is at the bottom, then violet colour lies at the bottom but in figure (b), the base BC is at the top, then violet would be at the top after dispersion, and third colour would be blue.

---

18. At noon the sun appears white as
(a) light is least scattered
(b) all the colours of the white light are scattered away
(c) blue colour is scattered the most
(d) red colour is scattered the most

Answer/Explanation

Answer: a
Explanation:

(a) At noon, the sun is at top and the light rays coming from the sun have to travel lens distance hence, all colours get scattered very less even blue and violet.

---

19. Twinkling of stars is due to atmospheric
(a) dispersion of light by water droplets
(b) refraction of light by different layers of varying refractive indices
(c) scattering of light by dust particles
(d) internal reflection of light by clouds.

Answer/Explanation

Answer: b
Explanation:
(b) Twinkling of star is due to atmospheric refraction of starlight caused by the gradual change in refractive index of different air layers at different height, the apparent position of star keeps on changing.

---

20. The clear sky appears blue because
(a) blue light gets absorbed in the atmosphere.
(b) ultraviolet radiations are absorbed in the atmosphere.
(c) violet and blue lights get scattered more than lights of all other colours by the atmosphere.
(d) light of all other colours is scattered more than the violet and blue colour lights by the atmosphere.

Answer/Explanation

Answer: c
Explanation:
(c) Violet and blue colour have shorter wavelength. So, they scattered more than lights of other colour by the molecules present in the atmosphere.

---

21. The danger signals installed at the top of tall buildings are red in colour. These can be easily seen from a distance because among all other colours, the red light
(a) is scattered the most by smoke or fog
(b) is scattered the least by smoke or fog
(b) is absorbed the most by smoke or fog
(c) moves fastest in air

Answer/Explanation

Answer: b
Explanation:
(b) Red colour has longer wavelength so least scattered by smoke or fog.

PRASANTH KUMAR ROYAL'S

22. The bluish colour of water in deep sea is due to
(a) the presence of algae and other plants found in water
(b) reflection of sky in water
(c) scattering of light
(d) absorption of light by the sea

Answer/Explanation

Answer: c
Explanation:
(c) The fine water molecules mainly scatter blue light due to its shorter wavelength.

PRASANTH KUMAR ROYAL'S

23. When light rays enter the eye, most of the refraction occurs at the
(a) crystalline lens
(b) outer surface of the cornea
(c) iris
(d) pupil

Answer/Explanation

Answer: b
Explanation:
(b) Most of the refraction for light rays entering the eye occurs at the outer surface of cornea which acts a primary lens converging in nature.

---

24. The focal length of the eye lens increases when eye muscles
(a) are relaxed and lens becomes thinner
(b) contract and lens becomes thicker
(c) are relaxed and lens becomes thicker
(d) contract and lens becomes thinner

Answer/Explanation

Answer: a
Explanation:
(a) Ciliary muscles modify the curvature of eye lens. When eye muscles are relaxed, eye lens becomes thinner thereby are relaxed, eye lens becomes thinner thereby increase in the focal length of eye lens.

Direction (Q25 to Q30):
In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.
25. Assertion: Blind spot is a small area of the retina which is insensitive to light where the optic nerve leaves the eye.
Reason: There are no rods or cones present at the junction of optic nerve and retina in the eye.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

26. Assertion: The near-point of a hypermetropic eye is more than 25 cm away.
Reason: Hypermetropia is corrected using spectacles containing concave lenses.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

---

27. Assertion: Myopia is the defect of vision in which a person cannot see the distant objects clearly.
Reason: This due to eye-ball being too short.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

---

28. Assertion: Concave mirrors are used as reflectors in torches, vehicle head-lights and in search lights.
Reason: When an object is placed beyond the centre of curvature of a concave mirror, the image formed is real and inverted.

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: b
Explanation:
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

---

29. Assertion: The light emerges from a parallel-sided glass slab in a direction perpendicular with that in which enters the glass slab.
Reason: The perpendicular distance between the original path of incident ray and emergent ray coming out of glass slab is called lateral displacement of the emergent ray of light.

Answer/Explanation

Answer: d
Explanation:
(d) The statement of the Assertion is false but the Reason is true.

---

30. Assertion: When a pencil is partly immersed in water and held obliquely to the surface, the pencil appears to bend at the water surface.
Reason: The apparent bending of the pencil is due to the refraction of light when it passes from water to air.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

31. The least distance of distinct vision for a nor¬mal eye is
(a) infinity
(b) 25 cm
(c) 2.5 cm
(d) 25 m

Answer

Answer: b

---

32. A person cannot see distinctly objects kept beyond 2 m. This defect can be corrected by using a lens of power
(a) +0.5 D
(b) -0.5 D

PRASANTH KUMAR ROYAL'S

(c) +0.2 D
(d) -0.2 D

Answer

Answer: b

---

33. The defect of vision in which a person cannot see the distant objects clearly but can see nearby objects clearly is called
(a) myopia
(b) hypermetropia
(c) presbyopia
(d) bifocal eye

Answer

Answer: a

---

34. The splitting of white light into different colours on passing through a prism is called
(a) reflection
(b) refraction
(c) dispersion
(d) deviation

Answer

Answer: c

---

35. At noon, the Sun appears white as
(a) blue colour is scattered the most
(b) red colour is scattered the most
(c) light is least scattered
(d) all the colours of the white light are scattered away

Answer

Answer: c

---

36. Twinkling of stars is due to
(a) reflection of light by clouds
(b) scattering of light by dust particles
(c) dispersion of light by water drops
(d) atmospheric refraction of starlight

PRASANTH KUMAR ROYAL'S

Answer

Answer: d

---

37. When white light enters a glass prism from air, the angle of deviation is least for
(a) blue light
(b) yellow light
(c) violet light
(d) red light

Answer

Answer: d

PRASANTH KUMAR ROYAL'S

38. When white light enters a glass prism from air, the angle of deviation is maximum for
(a) blue light
(b) yellow light
(c) red light
(d) violet light

Answer

Answer: c

---

39. The amount of light entering the eye can be controlled by the
(a) iris
(b) pupil
(c) cornea
(d) ciliary muscles

Answer

Answer: b

---

40. What type of image is formed by the eye lens on the retina?
(a) Real and erect
(b) Virtual and inverted
(c) Real and inverted
(d) Virtual and erect

Answer

Answer: c

---

41. The medical condition in which the lens of the eye of a person becomes progressively cloudy resulting in blurred vision is called
(a) myopia
(b) hypermetropia
(c) presbyopia
(d) cataract

Answer

Answer: d

---

42. The defect of the eye in which the eyeball becomes too long is
(a) myopia
(b) hypermetropia
(c) presbyopia
(d) cataract

Answer

Answer: a

---

43. The defect of vision in which the image of nearby objects is formed behind the retina, is
(a) myopia
(b) short-sightedness
(c) hypermetropia
(d) presbyopia

Answer

Answer: c

---

44. Which of the following is a natural phenomenon which is caused by the dispersion of sunlight in the sky?
(a) Twinkling of stars
(b) Stars seem higher than they actually are
(c) Advanced sunrise and delayed sunset
(d) Rainbow

Answer

Answer: d

---

45. Name the scientist who was the first to use a glass prism to obtain the spectrum of sunlight.
(a) Isaac Newton

PRASANTH KUMAR ROYAL'S

(b) Einstein
(c) Kepler
(d) Hans Christian Oersted

Answer

Answer: a

---

46. Very fine particles scatter more of _____ colour.

Answer/Explanation

Answer: c
Explanation: blue

---

47. Red light is used for signals as it is _____ scattered.

Answer/Explanation

Answer: c
Explanation: less

---

48. Bi-focal lens is used to correct _____ refractive error.

Answer/Explanation

Answer: c
Explanation: presbyopic

---

49. Hypermetropic eye is corrected by using _____ lens.

Answer/Explanation

Answer: c
Explanation: convex

---

50. When light falls at critical angle on the surface of a rarer medium while coming from a denser medium, the refracting angle is _____ .

Answer/Explanation

Answer: c
Explanation: 90°

PRASANTH KUMAR ROYAL'S

51. The dispersion of white light occurs because colours of white light at different _____ through the glass prism.

Answer/Explanation

Answer: c
Explanation: speed

---

52. 28 frames are projected per second in motion picture. [True/False]

Answer/Explanation

Answer: c
Explanation: False

---

53. Myopia is caused due to excessive curvature in cornea. [True/False]

Answer/Explanation

Answer: c

Explanation: True

---

54. A lens of higher focal length has less power. [True/False]

Answer/Explanation

Answer: c
Explanation: True

---

55. Power of accommodation for a normal eye is 4 dioptre. [True/False]

Answer/Explanation

Answer: c
Explanation: True

---

56. The optical nerves carry signals to the brain. [True/False]

Answer/Explanation

Answer: c
Explanation: True

PRASANTH KUMAR ROYAL'S

Direction:
Match Column I with Column II.
57.

Column I	Column II
(i) Twinkling stars	(A) Suspended water drops
(ii) Blue sky	(B) Group of colours
(iii) Rainbow	(C) Scattering
(iv) Spectrum	(D) Changing atmosphere

Answer/Explanation

Answer: c
Explanation:
(i) → (D)
(ii) → (C)
(iii) → (A)
(iv) → (B)

---

58. In a human eye, name the following parts:
(a) a thin membrane which allows light to enter the eye.
(b) the muscles which help in changing the focal length of eye lens.

Answer/Explanation

Answer: c
Explanation:
(a) Cornea
(b) Ciliary muscles

---

59. Name the part of our eyes that helps us to focus near and distant objects in quick succession.

Answer/Explanation

Answer: c
Explanation:
Ciliary muscles help in changing the focal length of the eye lens.

---

60. In which direction, the near point of hypermetropic eye is shifted from the normal near point?

Answer/Explanation

Answer: c
Explanation:
The near point of hypermetropic eye is shifted farther away from the normal near point.

PRASANTH KUMAR ROYAL'S

61. Name the part responsible for the power of accommodation of the human eye.
Or
Name the component of eye that is responsible for the adjustment of eye lens?

Answer/Explanation

Answer: c
Explanation: Ciliary muscles

62. A person suffering from an eye defect uses lenses of power ID. Name the defect he is suffering from and the nature of lens used.

Answer/Explanation

Answer: c
Explanation: Hypermetropia; convex lens.

63. What is the nature of eye lens of human eye and that of the image formed at the retina of the eye by it?

Answer/Explanation

Answer: c
Explanation:
The nature of eye lens in human eye is convex nature of the image formed on the retina by it is real, inverted and diminished.

64. Mention the role of optic nerve in the human eye.

Answer/Explanation

Answer: c
Explanation:
Role of optic nerve in human eye: It transmits the visual information in the form of electrical signal generated at retina to the brain.

65. What is the other name of old hypermetropia?

Answer/Explanation

Answer: c
Explanation: Presbyopia.

PRASANTH KUMAR ROYAL'S

Collection of MCQ for Class 10 Science

Fill in the Blanks

1. The ability of the eye to focus both near and distant objects, by adjusting its focal length, is called the …….. of the eye.
2. …….. of light causes the blue colour of sky and reddening of the Sun at sunrise and sunset.
3. Most of the refraction of light rays entering the eye occurs at the outer surface of the …….. .
4. Due to the greater converging power of the eye lens in a myopic eye, the image of distant object is formed …….. the retina.
5. A person suffering from both myopia and hypermetropia uses …….. leases.

Answers

1. accommodation
2. Scattering
3. cornea
4. in front of
5. bifocal

PRASANTH KUMAR ROYAL'S

Chapter 12 Electricity

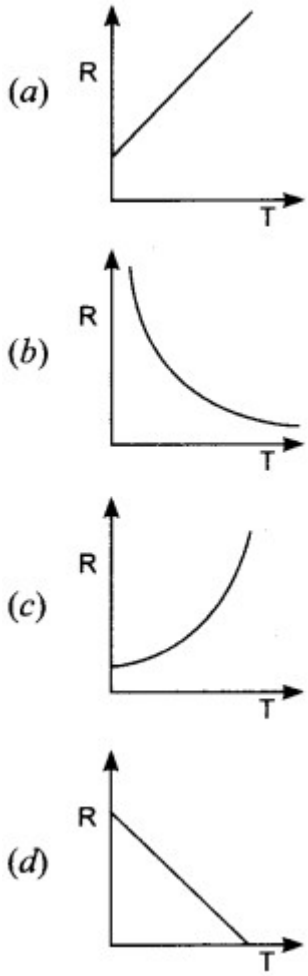
1. A wire of length /, made of material resistivity ρ is cut into two equal parts. The resistivity of the two parts are equal to,
(a) ρ
(b) \(\frac{\rho}{2}\)
(c) 2 ρ
(d) 4 ρ

Answer/Explanation

Answer: a
Explanation:
(a) Resistivity of the material depends only on the nature of material not dimensions.

---

2. The temperature of a conductor is increased. The graph best showing the variation of its resistance is



Answer/Explanation

Answer: a
Explanation:
(a) Resistance is directly proportional to temperature of the conductor.

---

3. A battery of 10 volt carries 20,000 C of charge through a resistance of 20 Ω. The work done in 10 seconds is

(a) $2 \times 10_3$ joule

(b) 2×10^5joule

(c) 2×10^4 joule

(d) 2×10^2 joule

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer: b
Explanation:
(b) W= qV= 20000 × 10 = 2,00, 000 = 2×10^5 J

---

4. A boy records that 4000 joule of work is required to transfer 10 coulomb of charge between two points of a resistor of 50 Ω. The current passing through it is
(a) 2 A
(b) 4 A
(c) 8 A
(d) 16 A

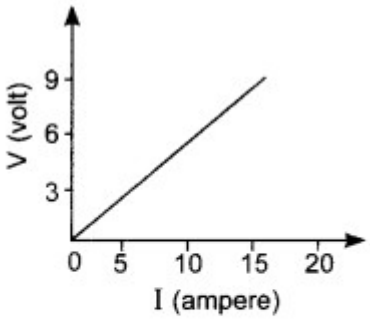
Answer/Explanation

Answer: c
Explanation:
(c) Work done in transferring the charge
W= qV = qlR …….. (V = IR)

$$\Rightarrow \quad I = \frac{W}{qR} = \frac{4000}{10 \times 50} = 8A$$

---

5. The resistance whose V-I graph is given below is



(a) $\frac{5}{3}\ \Omega$ (b) $\frac{3}{5}\ \Omega$
(c) $\frac{5}{2}\ \Omega$ (d) $\frac{2}{5}\ \Omega$

Answer/Explanation

Answer: b
Explanation:

PRASANTH KUMAR ROYAL'S

(b) Resistance = slope line of V-I graph =

$$\frac{9-0}{15-0}=\frac{9}{15}=\frac{3}{5}\ \Omega.$$

---

6. To get 2 Ω resistance using only 6 Ω resistors, the number of them required is
(a) 2
(b) 3
(c) 4
(d) 6

Answer/Explanation

Answer: b
Explanation:
(b) Three resistors of 2 Ω is required to get 6 Ω because resultant is more than individual so they all must be connected in series.

---

7. Two wires of same length and area made of two materials of resistivity ρ_1 and ρ_2 are connected in series to a source of potential V. The equivalent resistivity for the same area is

$(a)\ \rho_1+\rho_2$ $(b)\ \frac{\rho_1\rho_2}{\rho_1+\rho_2}$
$(c)\ \frac{(\rho_1+\rho_2)}{\rho_1\rho_2}$ $(d)\ \left(\frac{|\rho_1+\rho_2|}{2}\right)$

Answer/Explanation

Answer: c
Explanation:
(c) For same length and area of cross-section $R \propto p$.
For series combination, equivalent resistance is
$R_s = R_1 + R_2$
$\Rightarrow P_s = \rho_1 + \rho_2$

---

8. Two devices are connected between two points say A and B in parallel. The physical quantity that will remain the same between the two points is
(a) current
(b) voltage
(c) resistance
(d) None of these

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer: b
Explanation:
(b) In parallel combination, voltage remains same across two points.

---

9. The least resistance obtained by using 2 Ω, 4 Ω, 1 Ω and 100 Ω is
a) < 100 Ω
(b) < 4 Ω
(c) < 1 Ω (d) > 2 Ω

Answer/Explanation

Answer: c

Explanation:
(c) In parallel combination, the equivalent resistance is smaller than the least resistance used in the circuit.

---

10. Two wires of same length and area, made of two materials of resistivity ρ_1 and ρ_2 are connected in parallel V to a source of potential. The equivalent resistivity for the same length and area is

$$(a)\ \rho_1 + \rho_2 \qquad (b)\ \frac{\rho_1\rho_2}{\rho_1+\rho_2}$$
$$(c)\ \frac{(\rho_1+\rho_2)}{\rho_1\rho_2} \qquad (d)\ |\rho_1 - \rho_2|$$

Answer/Explanation

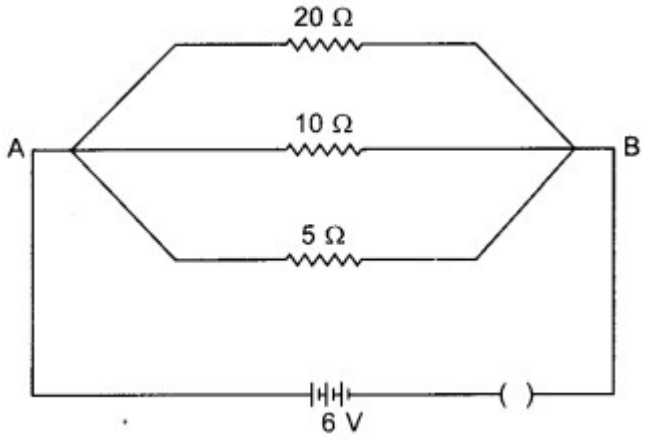
Answer: b
Explanation:
(b) Equivalent resistance in parallel combination is \(\frac{1}{R_{P}}=\frac{1}{R_{1}}+\frac{1}{R_{2}}\)
For the same length and area of cross-section, R ∝ p (resistivity)

$$\therefore \quad \frac{1}{\rho_p} = \frac{1}{\rho_2} = \frac{\rho_1+\rho_2}{\rho_1\rho_2}$$

$$\text{or} \quad \rho_p = \frac{\rho_1\rho_2}{\rho_1+\rho_2}$$

PRASANTH KUMAR ROYAL'S

11. Calculate the current flows through the 10 Ω resistor in the following circuit.



(a) 1.2 A
(b) 0.6 A
(c) 0.2 A
(d) 2.0 A

Answer/Explanation

Answer: b
Explanation:
(b) In parallel, potential difference across each resistor will remain same. So, current through 10 Ω resistor
I = \(\frac{V}{R}=\frac{6}{10}\) = 0.6 A

---

12. Two resistors are connected in series gives an equivalent resistance of 10 Ω. When connected in parallel, gives 2.4 Ω. Then the individual resistance are
(a) each of 5 Ω
(b) 6 Ω and 4 Ω
(c) 7 Ω and 4 Ω
(d) 8 Ω and 2 Ω

Answer/Explanation

Answer: b
Explanation:
(b) In series, $R_s = R_1 + R_2 = 10\ \Omega$

$$\text{In parallel, } \frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_1} = \frac{1}{2.4} = \frac{10}{24} = \frac{5}{12}$$

PRASANTH KUMAR ROYAL'S

13. If R_1 and R_2 be the resistance of the filament of 40 W and 60 W respectively operating 220 V, then

(a) $R_1 < R_2$

(b) $R_2 < R_1$

(c) $R_1 = R_2$

(d) $R_1 \geq R_2$

Answer/Explanation

Answer: b
Explanation:
(b) Using power, P = \(\frac{V^{2}}{R}\) or R = \(\frac{V^{2}}{P}\)
For the same voltage, R $\propto$ \(\frac{1}{P}\)
More the power, lesser the resistance.
Accordingly, $R_2 < R_1$

---

14. The resistance of hot filament of the bulb is about 10 times the cold resistance. What will be the resistance of 100 W-220 V lamp, when not in use?

(a) 48 Ω

(b) 400 Ω

(c) 484 Ω

(d) 48.4 Ω

Answer/Explanation

Answer: c
Explanation:

$$(c)\ R = \frac{V^2}{P} = \frac{220 \times 220}{100} = 484\ \Omega$$

---

15. If P and V are the power and potential of device, the power consumed with a supply potential V_1 is

$$(a)\ \frac{V_1^2}{V^2}\,P \qquad (b)\ \frac{V^2}{V_1^2}\,P$$

$$(c)\ \frac{V}{V_1}\,P \qquad (d)\ \frac{V_1}{V}\,P$$

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: c
Explanation:

$$(c)\ R = \frac{V}{V_1} \text{ and } P_1 = \frac{V_1^2}{R} = \frac{V_1^2}{V^2} P$$

---

16. A coil in the heater consume power P on passing current. If it is cut into halves and joined in parallel, it will consume power
(a) P
(b) \(\frac{P}{2}\)
(c) 2P
(d) 4P

Answer/Explanation

Answer: d
Explanation:

$$(d)\ \text{Original power consumed, } P = \frac{V^2}{R}$$

When used in parallel

$$\frac{1}{R_P} = \frac{1}{R_1} + \frac{1}{R_2} = \frac{1}{\frac{R}{2}} + \frac{1}{\frac{R}{2}} = \frac{4}{R}$$

$$R_P = \frac{R}{4}$$

$\therefore$ New power consumed when two halves in parallel

$$P' = \frac{V^2}{R_P} = \frac{V^2}{\frac{R}{4}} = 4\,\frac{V^2}{R} = 4\ P$$

---

17. A fuse wire repeatedly gets burnt when used with a good heater. It is advised to use a fuse wire of
(a) more length
(b) less radius
(c) less length
(d) more radius

Answer/Explanation

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Answer: d
Explanation:
(d) In order to get the working of heater properly, fused wire of higher rating must be used.

---

18. A cooler of 1500 W, 200 volt and a fan of 500 W, 200 volt are to be used from a household supply. The rating of fuse to be used is
(a) 2.5 A
(b) 5.0 A
(c) 7.5 A
(d) 10 A

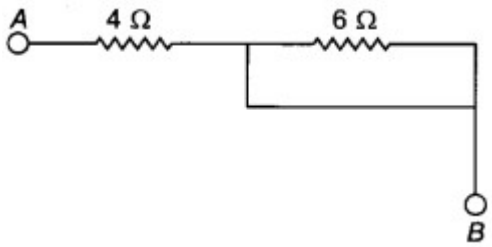
Answer/Explanation

Answer: d
Explanation:
(d) Total power used, $P = P_1 + P_1 = 1500 + 500 = 2000$ W.
Current drawn from the supply,

$$I = \frac{P}{V} = \frac{2000}{200} \text{ 10 A}$$

---

19. The effective resistance between A and B is



(a) 4Ω
(b) 6Ω
(c) May be 10 Ω
(d) Must be 10 Ω

Answer/Explanation

Answer: a
Explanation:
(a) 6 Ω is shorted so effective resistance is 4 Ω.

---

20. A cell, a resistor, a key, and an ammeter are arranged as shown in the circuit diagrams. The current recorded in the ammeter will be

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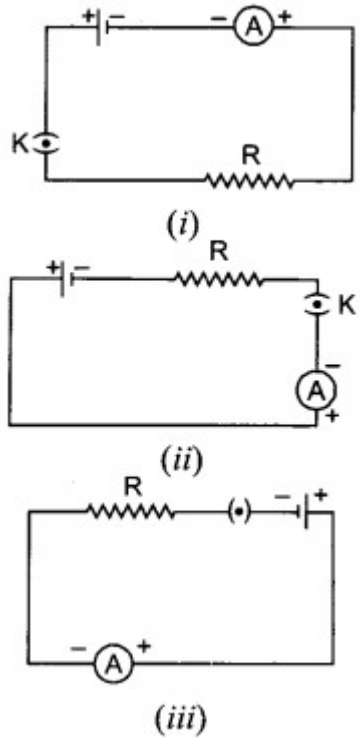
(a) maximum in (i)
(b) maximum in (ii)
(c) maximum in (iii)
(d) same in all the cases



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Answer/Explanation

Answer: d
Explanation:
(d) Ammeter is always connected in series with in the circuit. The reading is independent from its location.

---

21. A current of 1 A is drawn by a filament of an electric bulb. Number of electrons passing through a cross-section of the filament in 16 seconds would be roughly

(a) 10^{20}
(b) 10^{16}
(c) 10^{18}
(d) 10^{23}

Answer/Explanation

Answer: a
Explanation:

(a) Q = ne and Q = It
∴ ne = It

$$\text{or} \quad n = \frac{It}{e} = \frac{1 \times 16}{1.6 \times 10^{-19}} = 10^{20} \text{ electrons}$$

---

22. What is the maximum resistance which can be made using five resistors each of 1/5 W?
(a) 1/5 Ω
(b) 10 Ω
(c) 5 Ω
(d) 1 Ω

Answer/Explanation

Answer: d
Explanation:
(d) Series combination provide the maximum resistance.

$$\text{Hence, } R = R_1 + R_2 + R_3 + R_4 + R_5$$
$$= \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{5}{5} = 1\ \Omega$$

---

23. A cylindrical conductor of length l and uniform area of cross-section A has resistance R. Another conductor of length 2l and resistance R of the same material has area of cross-section
(a) A/2
(b) 3A/2
(c) 2A
(d) 3A

Answer/Explanation

Answer: c
Explanation:

$$(c) \text{ Since } R \propto \frac{l}{A} \quad \text{So, } \frac{R_1}{R_2} = \frac{l_1}{l_2} \cdot \frac{A_2}{A_1}$$
$$\Rightarrow \quad \frac{l}{2l} \times \frac{A_2}{A} = \frac{R}{R} = 1$$
$$\Rightarrow \quad A_2 = 2A$$

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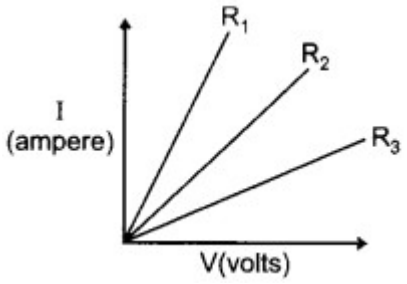
24. A student carries out an experiment and plots the V-I graph of three samples of nichrome wire with resistances R_1 R_2 and R_3 respectively. Which of the following is hue?



(a) $R_1 = R_2 = R_3$

(b) $R_1 > R_2 > R_3$

(c) $R_3 > R_2 > R_1$

(d) $R_2 > R_3 > R_1$

Answer/Explanation

Answer: c
Explanation:
(c) Current is inversely proportional to the resistance for the same potential. So higher resistance would allow less current to pass through its which is shown by R_3 as $I_3 < I_2 < I_1$

$\therefore R_3 > R_2 > R_1$

---

25. If the current I through a resistor is increased by 100 % (assume that temperature remains unchanged), the increase in power dissipated will be
(a) 100%
(b) 200%
(c) 300 %
(d) 400 %

Answer/Explanation

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Answer: c
Explanation:

(c) Since, $P \propto I^2$

So $\frac{P_2}{P_1} = \left(\frac{I_2}{I_1}\right)^2 = \left(\frac{2I}{I}\right)^2 = 4$

$\Rightarrow \quad P_2 = 4P_1$

$\therefore$ % increase in power $= \frac{P_2 - P_1}{P_1} \times 100 = \frac{4P - P}{P} \times 100 = 300\%$

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26. The resistivity does not change if
(a) the material is changed
(b) the temperature is changed
(c) the shape of the resistor is changed
(d) both material and temperature are changed

Answer/Explanation

Answer: c
Explanation:
(c) The resistivity does not change if the shape of resistor is changed because nature of material will remain same.

---

27. In an electrical circuit two resistors of 2 Ω and 4 Ω respectively are connected in series to a 6 V battery. The heat dissipated by the 4 Ω resistor in 5 s will be
(a) 5 J
(b) 10 J
(c) 20 J
(d) 30 J

Answer/Explanation

Answer: c
Explanation:
(c) Total resistance of the combination
R_s = 2 + 4 = 6 Ω
Current, I = \(\frac{V}{R_{s}}=\frac{6}{6}\)= 1
Heat dissipation in 4 Ω resistor,
H = $I^2Rt = 1^2 \times 4 \times 5 = 20$ J

---

28. Electric potential is a:
(a) scalar quantity
(b) vector quantity
(c) neither scalar nor vector
(d) sometimes scalar and sometimes vector

Answer

Answer: a

Electricity Question 29. 1 mV is equal to:
(a) 10 volt
(b) 1000 volt
(c) 10^{-3} volt
(d) 10^{-6} volt

Answer

Answer: c

Electricity MCQ Question 30. Coulomb is the SI unit of:
(a) charge
(b) current
(c) potential difference
(d) resistance

Answer

Answer: a

---

31. When electric current is passed, electrons move from:
(a) high potential to low potential.
(b) low potential to high potential.
(c) in the direction of the current.
(d) against the direction of the current.

Answer

Answer: b

---

32. The heating element of an electric iron is made up of:
(a) copper
(b) nichrome

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(c) aluminium
(d) iron

Answer

Answer: b

---

33. The electrical resistance of insulators is
(a) high
(b) low
(c) zero
(d) infinitely high

Answer

Answer: d

---

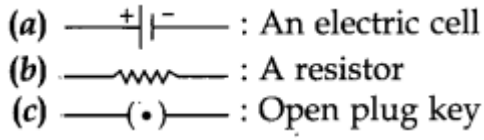
34. Electrical resistivity of any given metallic wire depends upon
(a) its thickness
(b) its shape
(c) nature of the material
(d) its length

Answer

Answer: c

---

35. Which of the following is not correctly matched?



Answer

Answer: c

---

36. Electric power is inversely proportional to
(a) resistance
(b) voltage
(c) current
(d) temperature

Answer

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Answer: a

---

37. What is the commercial unit of electrical energy?
(a) Joules
(b) Kilojoules
(c) Kilowatt-hour
(d) Watt-hour

Answer

Answer: c

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38. Three resistors of 1 Ω, 2 ft and 3 Ω are connected in parallel. The combined resistance of the three resistors should be
(a) greater than 3 Ω
(b) less than 1 Ω
(c) equal to 2 Ω
(d) between 1 Ω and 3 Ω

Answer/ Explanation

Answer: b
Explanation:

Here $R_1 = 1\ \Omega,\ R_2 = 2\ \Omega,\ R_3 = 3\ \Omega$

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \quad \therefore \quad \frac{1}{R} = \frac{1}{1} + \frac{1}{2} + \frac{1}{3} \quad \Rightarrow \quad \frac{1}{R} = \frac{6+3+2}{6} = \frac{11}{6} \quad \therefore \quad R = \frac{6}{11} < 1$$

---

39. An electric bulb is connected to a 220V generator. The current is 0.50 A. What is the power of the bulb?
(a) 440 W
(b) 110 W
(c) 55 W
(d) 0.0023 W

Answer/ Explanation

Answer: b
Explaination:
Here, V = 220 V, I = 0.50 A
∴ Power (P) = VI = 220 x 0.50 = 110 W

---

40. The resistivity of insulators is of the order of
(a) 10^{-8} Ω-m
(b) 10^{1} Ω-m
(c) 10^{-6} Ω-m
(d) 10^{6} Ω-m

Answer

Answer: a

---

41. 1 kWh = …….. J
(a) 3.6×10^{-6} J
(b) \(\frac{1}{3.6}\) × 10^{6} J
(c) 3.6×10^{6} J
(d) \(\frac{1}{3.6}\) × 10^{-6} J

Answer

Answer: c

---

42. Which of the following gases are filled in electric bulbs?
(a) Helium and Neon
(b) Neon and Argon
(c) Argon and Hydrogen
(d) Argon and Nitrogen

Answer

Answer: d

---

43. 100 J of heat is produced each second in a 4Ω resistor. The potential difference across the resistor will be:
(a) 30 V
(b) 10 V
(c) 20 V
(d) 25 V

Answer

Answer: b

PRASANTH KUMAR ROYAL'S

Direction (Q44 to Q48): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.
44. Assertion: When a battery is short circuited, the terminal voltage is zero.
Reason: In short circuit, the current is zero.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

---

45. Assertion: Conductors allow the current to flow through themselves.
Reason: They have free charge carriers.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

46. Assertion: In an open circuit, the current passes from one terminal of the electric cell to another.
Reason: Generally, the metal disc of a cell acts as a positive terminal.

Answer/Explanation

Answer: d
Explanation:
(d) The statement of the Assertion is false but the Reason is true.

---

47. Assertion: The statement of Ohm’s law is K = IR
Reason: V = IR is the equation which defines resistance.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

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48. Assertion: Bending of wire decrease the resistance of electric wire.
Reason: The resistance of a conductor depends on length, thickness, nature of material and temperature of the conductor.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

49. Connecting many resistors in parallel, will _____ the resistance of the circuit.

Answer/Explanation

Answer:
Explanation:
(a) Equivalent resistance in parallel combination will be smaller than the lest resistance used in circuit.

---

50. Current is a _____ quantity.

Answer/Explanation

Answer:
Explanation:
(b) Current is a scalar quantity as it has no particular direction of flow.

---

51. Presence of argon prolongs the life of _____ .

Answer/Explanation

Answer:
Explanation: Filament of electric bulb

---

52. Work done on unit charge is called as _____ .

Answer/Explanation

Answer:
Explanation: Potential difference

---

53. Two resistors are in parallel when they have _____ common points.

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Answer/Explanation

Answer:
Explanation: One

---

54. 746 watts make _____ horse power.

Answer/Explanation

Answer:
Explanation: One

---

55. Rheostat used in series in a circuit can make a bulb to glow with varying brightness. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

56. One common point and no sharing devices for that point are the conditions to be satisfied for two resistors to be in series. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

57. When bulbs are connected in series, the lower power bulb glows brighter. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

58. Nichrome is used for making standard resistances as it readily varies its resistance with temperature. [True/False]

Answer/Explanation

Answer:
Explanation: False

PRASANTH KUMAR ROYAL'S

Electricity Class 10 Question 59. The equivalent resistance between two diametrically opposite points as a wire of 10 Ω resistance is made a circle is 2.5 Ω. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

60. Devices of higher power used at home have lower resistance. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

61. 12 V means the work done to carry a unit charge from one point to another is 12 joule. [True/False]

Answer/Explanation

Answer:
Explanation: True

Direction: Match Column I with Column II.
62.

Column I	Column II
(i) Fuse wires	A. Rheostat
(ii) Bulbs	B. Higher resistance
(iii) Higher power	C. Parallel
(iv) Potential divider	D. Series
(v) Lower current	E. Lower resistance

Answer/Explanation

Answer:
Explanation:
(i) → D, Fuse wire always connected in series with live wire.
(ii) → C, In household circuitrs, bulbs are connected in parallel to get the same p.d across each bulb for desired brightness.
(iii) → E, P = \(\frac{V^{2}}{R}\)
(iv) → A, Rheostat can also be used as a potential divider
(v) → B From Ohm's law, I ∝ \(\frac{1}{R}\).

PRASANTH KUMAR ROYAL'S

63. Name the charge responsible for the conduction in a conductor?

Answer/Explanation

Answer:
Explanation: Electron.

---

64. When two ends of a metallic wire are connected across the terminals of a cell, some potential difference is set up between its ends. In which direction, electrons are flowing through the conductors?

Answer/Explanation

Answer:
Explanation:
Direction of flow of electron: From a lower potential end of a metallic conductor to its higher potential end.

---

65. Electric current flows through a metallic conductor from its one end A to other end B. Which end of the conductor is at higher potential? Why?

Answer/Explanation

Answer:
Explanation:
Current always flow from a higher potential to a lower potential end of the conductor. So end ‘A’ of the conductor is at a higher potential.

---

66. Is there any charge movement in a wire under normal conditions?

Answer/Explanation

Answer:
Explanation:
No, net motion is zero even though individual charge can move.

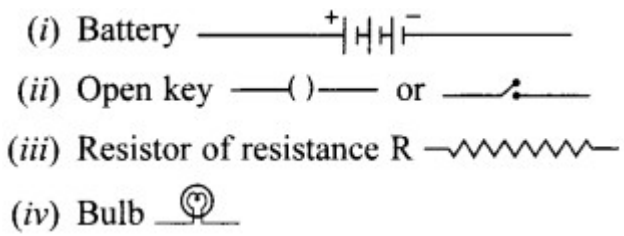
---

67. Draw the following symbols:
(i) Battery
(ii) Open key
(iii) Resistor of resistance R
(iv) Bulb

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation:



---

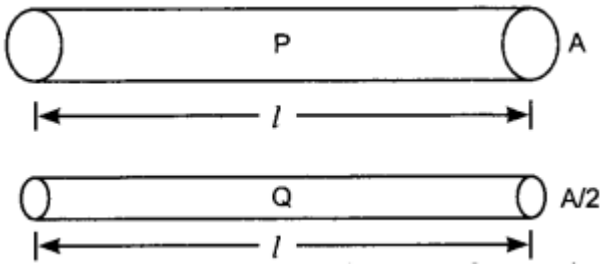
68. What is ohm? Define it.

Answer/Explanation

Answer:
Explanation:
One ohm is that resistance offered by the wire carrying 1A of current when IV is applied across its ends.

---

69. Out of the two wires P and Q shown below, which one has greater resistance? Justify it.



Answer/Explanation

Answer:
Explanation:
Smaller the area of cross-section, greater will be resistance as R ∝ $\frac{1}{A}$. …(For the same length)
So, wire has greater resistance.

---

70. What happens to resistance of a conductor when its area of cross-section is increased? [CBSE 2011]

Answer/Explanation

Answer:
Explanation:
Resistance decreases as R ∝ $\frac{1}{A}$.

PRASANTH KUMAR ROYAL'S

---

71. The radius of conducting wire is doubled. What will be the ratio of its new specific resistance to the old one?

Answer/Explanation

Answer:
Explanation:
1 : 1, as it depends on the nature of material only.

---

72. A given length of a wire is doubled on itself and this process is repeated once again. By what factor does the resistance of the wire change? [CBSE 2011]

Answer/Explanation

Answer:
Explanation:
Length becomes one-fourth of the original length and area of cross-section becomes four times that of original.

$$i.e., \quad l_2 = \frac{1}{4} l_1 \text{ and } A_2 = 4A_1$$

$$\therefore \quad \frac{R_2}{R_1} = \frac{l_2}{l_1} \times \frac{A_1}{A_2} = \frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$$

$$\Rightarrow \quad R_2 = \frac{1}{16} R_1$$

So, new resistance is $\left(\frac{1}{16}\right)$th of original resistance.

---

73. Name the scientist who first studied
(i) current
(ii) resistance in detail.

Answer/Explanation

Answer:
Explanation:
(i) Andre – Marie, Ampere
(ii) Georg – Simon, Ohm.

PRASANTH KUMAR ROYAL'S

74. Resistance of an incandescent filament of a lamp is comparatively much more than that when it is at room temperature. Why? [HOTS]

Answer/Explanation

Answer:
Explanation:
When bulb is switched on (i.e., incandescent state), the temperature of filament rises. As the temperature increases, the resistance of conductor also increases.

---

75. Why is magnanin used for making standard resistors?

Answer/Explanation

Answer:
Explanation:
Magnanin being an alloy has a low temperature coefficient of resistance.

---

76. A resistance of 1 k Ω has a current of 0.25 A throughout it when it is connected to the terminals of a battery. What is the potential difference across the ends of a resistor.

Answer/Explanation

Answer:
Explanation:
From Ohm's law,
V = IR = 0.25 × 1000 = 250 V

---

77. Calculate the current in a circuit if 500 C of charge passes through it in 10 minutes.

Answer/Explanation

Answer:
Explanation:
Given: Q = 500 C, t = 10 min. = 10 × 60 = 600 s.

$$\text{Using current, } I = \frac{Q}{t} = \frac{500}{600} = \frac{5}{6} = 0.83 \text{ A}$$

---

78. An electric iron draws a cu,.ent of 0.6 A when the voltage is 100 volt Calculate the amount of electric charge flowing through it in one hour.

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation:
As we know, Q = I × t
∴ Q = 0.6 × 3600 = 2160 C

---

79. Define the term resistivity.

Answer/Explanation

Answer:
Explanation:
The resistance offered by a wire of unit length and unit cross-sectional area is called resistivity. It is expressed in terms of ohm-metre (Q-m).

---

80. Write S.I. unit of resistivity. [CBSE 2015]

Answer/Explanation

Answer:
Explanation: Ohm-metre.

---

81. How will the resistivity of a conductor change when its length is tripled by stretching it?

Answer/Explanation

Answer:
Explanation:
The resistivity of a metallic conductor does not depend on the length of the wire, so it will remain same.

---

82. When a battery is connected to a closed circuit, charge flow in the circuit almost instantaneously. Explain.

Answer/Explanation

Answer:
Explanation:
As soon as the battery is connected to the circuit and circuit is closed, a potential difference is felt over the entire circuit. This causes the charges begin to flow.

---

83. Why is closed path required for the flow of current?

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation:
It makes possible to move the electrons in a particular direction, so closed path is necessary for the flow of current.

---

84. A lamp draws a current of 0.5 A when it is connected to a 60 V source. What is the resistance of the lamp?

Answer/Explanation

Answer:
Explanation:

$$\text{From Ohm's law, } I = \frac{V}{R} \text{ we get,}$$

$$R = \frac{V}{I} = \frac{60}{0.5} = 120\ \Omega$$

---

85. Why is a series arrangement not used for connecting domestic electrical appliances in a circuit?

Answer/Explanation

Answer:
Explanation:
If any one stops working due to some reason, other will also stop working.

---

86. A torch bulb is rated at 1.5 V, 500 mA. Find its resistance.

Answer/Explanation

Answer:
Explanation:

$$\text{From Ohm's law, } I = \frac{V}{R} \text{ we get,}$$

$$R = \frac{V}{I} = \frac{1.5}{500} \times 10^{-3} = 3\ \Omega$$

Fill in the Blanks

1. The SI unit of current is …… .
2. According to …… Law, the potential difference across the ends of a resistor is directly proportional to the …… through it, provided its remains constant.

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3. The resistance of a conductor depends directly on its …… , inversely on its …… and also on the …… of the conductor.
4. The SI unit of resistivity is …… .
5. If the potential difference across the ends of a conductor is doubled, the current flowing through it, gets …… .

Answers

1. ampere
2. Ohm's, current, temperature
3. length, area of cross-section, material
4. ohm-metre (Ω m)
5. doubled

PRASANTH KUMAR ROYAL'S

Chapter 13 Magnetic Effects of Electric Current

1. Magnetic effect of current was discovered by
(a) Oersted
(b) Faraday
(c) Bohr
(d) Ampere

Answer/Explanation

Answer: a
Explanation:
(a) Oersted showed that electricity and magnetism were related phenomena.

---

2. Inside the magnet, the field lines moves
(a) from north to south
(b) from south the north
(c) away from south pole
(d) away from north pole

Answer/Explanation

Answer: a
Explanation:
(a) Magnetic field inside the magnet moves from south to north pole.

---

3. Relative strength of magnetic field at a point in the space surrounding the magnet is shown by the
(a) length of magnet
(b) thickness of magnet

(c) degree of closeness of the field.
(d) resistance offered by the surroundings

Answer/Explanation

Answer: a
Explanation:
(a) The force acting on the pole of another magnet by the crowded magnetic field lines is greater.

---

4. Which of the following statement is not correct about the magnetic field?
(a) Magnetic field lines form a continuous closed curve.
(b) Magnetic field line do not interest each other.
(c) Direction of tangent at any point on the magnetic field line curve gives the direction of magnetic field at that point.
(d) Outside the magnet, magnetic field lines go from South to North pole of the magnet.

Answer/Explanation

Answer:
Explanation:
(d) Outside the magnet, magnetic field line emerges from North-pole and moves towards south-pole.

---

5. By which instrument, the presence of magnetic field be determined?
(a) Magnetic Needle
(b) Ammeter
(c) Galvanometer
(d) Voltmeter

Answer/Explanation

Answer: d
Explanation:
(a) With the help of magnetic field, one can find the presence of magnetic field in a region by observing its deflection.

---

6. The pattern of the magnetic field produced by the straight current carrying conducting wire is
(a) in the direction opposite to the current
(b) in the direction parallel to the wire
(c) circular around the wire
(d) in the same direction of current

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: a
Explanation:
(c) Magnetic field line around a current carrying straight conductor is represented by concentric circles.

---

7. The strength of magnetic field around a current carrying conductor is
(a) inversely proportional to the current but directly proportional to the square of the distance from wire.
(b) directly proportional to the current and inversely proportional to the distance from wire.
(c) directly proportional to the distance and inversely proportional to the current
(d) directly proportional to the current but inversely proportional the square of the distance from wire.

Answer/Explanation

Answer: b
Explanation:
• magnetic field strength increases on increasing the current through the wire.
• magnetic field strength decreases as the distance from the wire increases.

---

8. A current through a horizontal power line flows from south to North direction. The direction of magnetic field line 0.5m above it is
(a) North
(b) South
(c) West
(d) East

Answer/Explanation

Answer: a
Explanation:
(a) Apply right-hand thumb rule.

---

9. The nature of magnetic field line passing through the centre of current carrying circular loop is
(a) circular
(b) ellipse
(c) parabolic
(d) straight line

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: d
Explanation:
(d) magnetic field line at the centre of current carrying loop appears as a straight line.

---

10. The strength of each of magnet reduces to half when it cut along its length into the equal parts magnetic field strength of a solenoid. Polarity of solenoid can be determined by
(a) use of compass needle
(b) Right hand thumb rule
(c) fleming left hand rule
(d) either (a) or (b)

Answer/Explanation

Answer: d
Explanation:
(d) both (a) and (b) can be use to determine the polarity of solenoid.

---

11. The factors on which one magnetic field strength produced by current carrying solenoids depends are
(a) Magnitude of current
(b) Number of turns
(c) Nature of core material
(d) All of the above

Answer/Explanation

Answer: d
Explanation:
(d) Factors shown in (a), (b) and (c).

---

12. A soft iron bar is introduced inside the current carrying solenoid. The magnetic field inside the solenoid
(a) will decrease
(b) will remains same
(c) will increase
(d) will become zero

Answer/Explanation

Answer: c
Explanation:
(c) Soft iron inside the current carrying solenoid act as an electromagnet.

PRASANTH KUMAR ROYAL'S

13. When current is parallel to magnetic field, then force experience by the current carrying conductor placed in uniform magnetic field is
(a) Twice to that when angle is 60°
(b) Thrice to that when angle is 60°
(c) zero
(d) infinite

Answer/Explanation

Answer: a
Explanation:
(a) If the current direction is parallel to the magnetic field, then there will no force on the conductor exerted by the magnetic field.

---

14. A positive charge is moving upwards in a magnetic field directed towards north. The particle will be deflected towards
(a) west
(b) north
(c) south
(d) east

Answer/Explanation

Answer: a
Explanation:
(a) Apply fleming's left hand rule

---

15. Which of the following factors affect the strength of force experience by a current carrying conduct in a uniform magnetic field?
(a) magnetic field strength
(b) magnitude of current in a conductor
(c) length of the conductor within magnetic field
(d) All of above.

Answer/Explanation

Answer: d
Explanation:
(d) All the factors affect the strength of magnetic force.

---

16. Direction of rotation of a coil in electric motor is determined by
(a) fleming's right hand rule
(b) fleming's left hand rule

PRASANTH KUMAR ROYAL'S

(c) faraday law of electromagnetic inductors
(d) None of above

Answer/Explanation

Answer: b
Explanation:
(b) Fleming's left hand rule.

---

17. In electric motor, to make the coil rotating continuously in the same direction, current is reversed in the coil after every half rotation by a device called
(a) carbon brush
(b) commutator
(c) slip ring
(d) armature

Answer/Explanation

Answer: b
Explanation:
(b) A device that reverses the direction of current in the arms of armature through a circuit is called commutation.

---

18. The condition for the praenomen of electromagnetic induction is that there must be a relative motion between
(a) the galvanometer and magnet
(b) the coil of wire and galvanometer
(c) the coil of wire and magnet
(d) the magnet and galvanometer

Answer/Explanation

Answer: c
Explanation:
(c) The relative motion between the magnet and coil of wire causes change in magnetic field lines linked with the coil to produces induced current if the circuit is closed.

---

19. The instrument that use to defect electric current in the circuit is known as
(a) electric motor
(b) A.C generator
(c) galvanometer
(d) none of the above

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: a
Explanation:
(a) A galvanometer is an instrument that can direct the presence of current in a circuit.

---

20. We can induce the current in a coil by
(a) moving the coil in a magnetic field
(b) by changing the magnetic field around it
(c) by changing the orientation of the coil in the magnetic field
(d) All of above

Answer/Explanation

Answer: a
Explanation:
(a) The method can be used to induce the potential difference across the ends of a coil and hence induce current.

---

21. A magnet is moved towards a coil (i) quickly (ii) slowly. The induced potential difference
(a) more in (i) than in (ii) case
(b) more in (ii) than in (i) case
(c) same in both
(d) can’t say

Answer/Explanation

Answer: a
Explanation:
(a) When magnet is moved quickly, more will be the changing magnetic field strength and hence larger is the induced potential difference.

---

22. A.C generator works on the principle of
(a) force experience by a conductor in magnetic field
(b) electromagnetic induction
(c) electrostatic
(d) force experience by a charge particle in electric field.

Answer/Explanation

Answer: a
Explanation:
(a) Generator works on principle of electromagnetic induction.

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23. Fleming’s left hand and Right hand rules are used in
(a) Generator and electric motor
(b) Electric motor and generator
(c) any rule can be used for any device
(d) both are not applied for generator and motor.

Answer/Explanation

Answer: b
Explanation:
(b) Electric motor employs Fleming left hand rule while for generator, Fleming right-hand rule is used.

PRASANTH KUMAR ROYAL'S

24. A D.C generator works on the principle of
(a) ohnis law
(b) Joule’s law of heating
(c) faraday’s law of electromagnetic induction.
(d) none of the above

Answer/Explanation

Answer: c
Explanation:
(c) electric generator works on the basis of electromagnetic induction.

---

25. If the current values periodically from zero to a maximum value, back to zero and then reverses its direction, the current is
(a) direct
(b) alternative
(c) pulsating
(d) none of the above

Answer/Explanation

Answer: b
Explanation:
(b) The alternating current reverse its direction periodically.

---

26. Earth wire carries
(a) current
(b) voltage
(c) no current
(d) heat

Answer/Explanation

Answer: c
Explanation:
(c) Earth wire carries no current.

---

27. The main advantage of A.C power transmission over D.C power transmission over' long distance is
(a) AC transmit without much loss of energy
(b) less insulation problem
(c) less problem of instability
(d) easy transformation.

Answer/Explanation

Answer: a
Explanation:
(a) AC transmit over a long distance without much loss of energy as compare to DC.

---

28. Which among of these are the main characteristics of fuse element?
(a) High conductivity
(b) low melting point
(c) do not bum due to oxidation
(d) All of the above

Answer/Explanation

Answer: d
Explanation:
(d) Fuse wire must have all the characteristic to prevent from a possible damage.

---

29. Overloading is due to
(a) Insulation of wire is damaged
(b) fault in the appliances
(c) accidental hike in supply voltage
(d) All of the above

Answer/Explanation

Answer: d
Explanation:
(d) All are the causes to occur overloading

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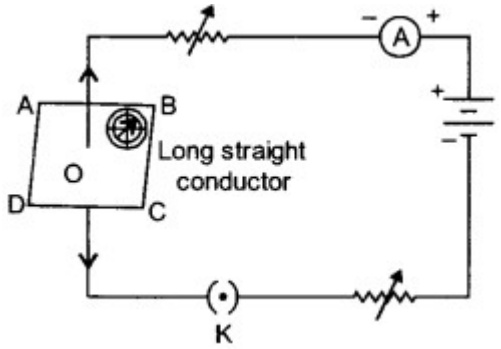
30. If the key in the given arrangement is taken out (the circuit is made open) and magnetic field lines are drawn over the horizontal plane ABCD, the lines are



(a) concentric circles
(b) elliptical in shape
(c) straight lines parallel to each other
(d) concentric circles near the point O but of elliptical shapes as we go away from it

Answer/Explanation

Answer: a
Explanation:
(a) Magnetic field lines around a straight current carrying conductor are in the form of concentric circle.

---

31. For a current in a long straight solenoid N-pole and S-pole are created at the two ends. Among the following statements, the incorrect statement is
(a) The field lines inside the solenoid are in the form of straight lines which indicates that the magnetic field is the same at all points inside the solenoid.
(b) The strong magnetic field produced inside the solenoid can be used to magnetise a piece of magnetic material like soft iron, when placed inside the coil.
(c) The pattern of the magnetic field associated with the solenoid is different from the pattern of the magnetic field around a bar magnet.
(d) The N-pole and S-pole exchange position when the direction of current through the solenoid is reversed.

Answer/Explanation

Answer: c
Explanation:
(c) A solenoid behaves like a bar magnet. Hence the pattern of magnetic field associated with solenoid and around the bar magnet is same.

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32. Commercial electric motors do not use
(a) an electromagnet to rotate the armature
(b) effectively large number of turns of conducting wire in the current carrying coil
(c) a permanent magnet to rotate the armature
(d) a soft iron core on which the coil is wound

Answer/Explanation

Answer: c
Explanation:
(c) Using electromagnet, the magnetic field strength further increase by increasing the current. Hence it will enhance the power of electric.

---

33. The strength of magnetic field inside a
long current carrying straight solenoid is
(a) more at the ends than at the centre
(b) minimum in the middle
(c) same at all points
(d) found to increase from one end to the other

Answer/Explanation

Answer: c
Explanation:
(c) A current carrying solenoid produces a uniform magnetic field inside it.

---

34. To convert an AC generator into DC generator
(a) split-ring type commutator must be used
(b) slip rings and brushes must be used
(c) a stronger magnetic field has to be used
(d) a rectangular wire loop has to be used

Answer/Explanation

Answer: a
Explanation:
(a) To connect AC generator into DC generator, split ring type commutation must be used to get a unidirectional direct current.

---

35. The most important safety method used for protecting home appliances from short circuiting or overloading is
(a) earthing
(b) use of fuse

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(c) use of stabilizers
(d) use of electric meter

Answer/Explanation

Answer: b
Explanation:
(b) It is most important method for protecting the electrical devices from short circuiting or overloading by stopping the flow of any large electric current exceeds from its rating.

---

36. What should be the core of an electromagnet?
(a) soft iron
(b) hard iron
(c) rusted iron
(d) none of above

Answer/Explanation

Answer: a
Explanation: (a) soft iron

---

37. Who has stated the Right hand Thumb Rule?
(a) Orsted
(b) Fleming
(c) Einstein
(d) Maxwell

Answer/Explanation

Answer: d
Explanation: (d) Maxwell

---

38. What is that instrument which can detect the presence of electric current in a circuit?
(a) galvanometer
(b) motor
(c) generator
(d) none of above

Answer/Explanation

Answer: a
Explanation: (a) galvanometer

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39. Which device produces the electric current?
(a) generator
(b) galvanometer
(c) ammeter
(d) motor

Answer/Explanation

Answer: a
Explanation: (a) generator

---

40. The best material to make permanent magnets is
(a) aluminium
(b) soft iron
(c) copper
(d) alnico

Answer

Answer: d

---

41. The magnetic field lines always begin from
(a) N-pole and end on S-pole.
(b) S-pole and end on N-pole.
(c) start from the middle and end at N-pole.
(d) start from the middle and end at S-pole.

Answer

Answer: a

---

42. The magnetic field is the strongest at
(a) middle of the magnet.
(b) north pole.
(c) south pole.
(d) both poles.

Answer

Answer: d

---

43. Material of the core of a strong magnet is
(a) aluminium
(b) soft iron

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(c) copper
(d) steel

Answer

Answer: b

---

44. Magnetic lines of force inside current carrying solenoid are
(a) perpendicular to axis.
(b) along the axis and are parallel to each other.
(c) parallel inside the solenoid and circular at the ends.
(d) circular.

Answer

Answer: c

---

45. A soft iron bar is introduced inside a current carrying solenoid. The magnetic field inside the solenoid
(a) will become zero.
(b) will increase.
(c) will decrease.
(d) will remain unaffected.

Answer

Answer: b

---

46. An electric generator actually acts as
(a) a source of electric charge.
(b) a source of neat energy.
(c) an electromagnet.
(d) a converter of energy.

Answer

Answer: d

---

47. A magnetic field directed in north direction acts on an electron moving in east direction. The magnetic force on the electron will act
(a) vertically upwards.
(b) towards east.
(c) vertically downwards.
(d) towards north.

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Answer

Answer: c

---

48. The direction of force on a current carrying conductor in a magnetic field is given by
(a) Fleming's left hand rule.
(b) Fleming's right hand rule.
(c) Right hand thumb rule.
(d) Left hand thumb rule.

Answer

Answer: a

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49. The direction of induced current is given by
(a) Fleming's right hand rule.
(b) Fleming's left hand rule.
(c) Right hand thumb rule.
(d) Left hand thumb rule.

Answer

Answer: a

---

50. Switches are connected to
(a) live wire.
(b) neutral wire.
(c) earth wire.
(d) any one.

Answer

Answer: a

---

51. The most important safety method used for protecting home appliances from short-circuiting or Overloading is
(a) earthing
(b) use of stabilizers
(c) use of fuse
(d) use of electric meter

Answer

Answer: c

Direction (Q52 to Q58): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.
52. Assertion: Only a change in magnetic field lines linked with coil will induces current in the coil.
Reason: The presence of large magnetic flux through the coil maintains a current in a closed circuit coil.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

---

53. Assertion: When the direction of velocity of moving charge is perpendicular to the magnetic field, it experience a maximum force.
Reason: Force on the moving charge does not depends on the direction magnetic field in which it moves.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

---

54. Assertion: Fuse is a safety device which is installed to prevent electrical circuits and possible fires.
Reason: Fuse consist of tin-plated copper wire having low melting point, which melts and breaks the circuit if the current exceeds a safe value.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

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55. Assertion: Steel core is used as an electromagnet.
Reason: Steel gets permanently magnetised when the current flows through the coil wound around.

Answer/Explanation

Answer: d
Explanation:
(d) The statement of the Assertion is false but the Reason is true.

---

56. Assertion: It is fatal to touch a live electric wire as the person gets a severe electric shock. In some cases, electric shock can even kill a person.
Reason: The electric current passes through the body to the earth forming a circuit and bums the blood.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

57. Assertion: Strength of an electromagnet depends on the magnitude of current flowing through them.
Reason: Electromagnets are majorly used for lifting heavy weights.

Answer/Explanation

Answer: b
Explanation:
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

---

58. Assertion: It is easier to bring North pole of a magnet to South pole of other magnet.
Reason: There is a force of attraction between unlike poles of magnet.

Answer/Explanation

Answer:
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

59. _____ is the commercial unit of electrical energy.

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Answer/Explanation

Answer:
Explanation: kilowatt hour

---

60. The touching of the live wire and neutral wire directly is known as _____ .

Answer/Explanation

Answer:
Explanation: short circuit

---

61. A D.C. generator is based on the principle of _____ .

Answer/Explanation

Answer:
Explanation: electromagnetic induction

---

62. _____ generators are used in power stations to generate electricity which is supplied to our homes.

Answer/Explanation

Answer:
Explanation: A.C.

---

63. A _____ works on the principle that when a rectangular coil is placed in a magnetic field and current is passed through it, a force acts on the coil which rotates it continuously.

Answer/Explanation

Answer:
Explanation: motor

---

64. When North pole approaches a coil, the front side of the coil will show an _____ current.

Answer/Explanation

Answer:
Explanation: anticlockwise

---

65. By sending current through a coil wound round a rod one can magnetise it permanently. [True/False]

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Answer/Explanation

Answer:
Explanation: False

---

66. The rate of change in magnetic flux produces induced emf or potential. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

67. In ideal conditions, green colour insulation is given for live wire. [True/False]

Answer/Explanation

Answer:
Explanation: False

---

68. Over-loading is caused by connecting many devices to one supply point. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

69. Potential of the earthed wire is zero. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

70. When a magnet is moved with its north polarity towards a coil placed in a closed circuit, then the neares face of the coil shows north polarity. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

71. When a coil and magnet both are stationary an induced emf is setup across the coil. [True/False]

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation: False

Direction: Match Column I with Column II.
72.

Column I	Column II
(i) Electric motor	(A) Electromagnet
(ii) Solenoid	(B) Heating effect of electric current
(iii) Safety Fuses	(C) Electrical energy to mechanical energy
(iv) Electric generator	(D) Electromagnetic induction

Answer/Explanation

Answer:
Explanation:
(i) → (C)
(ii) → (A)
(iii) → (B)
(iv) → (D)

---

73. State the observation made by Oersted on 1 the basis of his experiment with curren carrying conductors.

Answer/Explanation

Answer:
Explanation:
The electric current passing through a conducting wire produces magnetic effect.

---

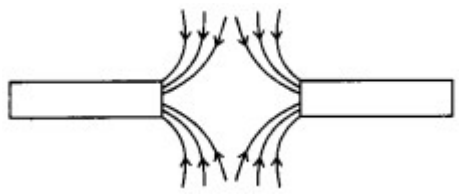
74. Name the device which is used to draw magnetic field lines.

Answer/Explanation

Answer:
Explanation: Compass needle.

---

75. Identify the poles of the magnet in the given figure.



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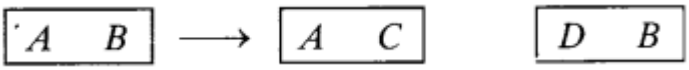
Answer/Explanation

Answer:
Explanation:
Both the poles facing each other represent south pole in nature as the magnetic field lines outside the magnet move from North to South Poles.

---

76. A magnet AB is broken into two pieces. What is the polarity of A, B, C and D?



Answer/Explanation

Answer:
Explanation:
If A is the North pole, then C – South pole D – North pole B – South pole

---

77. What is the direction of magnetic field lines inside and outside of a bar magnet?

Answer/Explanation

Answer:
Explanation:
Direction of magnetic field lines:
Inside a bar magnet: from South pole to North pole.
Outside of a bar magnet: from North pole to a South pole.

---

78. A magnetic needle deflects when it's brought near a current carrying conductor. Why?

Answer/Explanation

Answer:
Explanation:
Magnetic force exerted by the magnetic field produced by the straight current carrying conductor causes the deflection in the needle.

---

79. Name two parts of your body where magnetic field is produced significantly.

Answer/Explanation

Answer:
Explanation: Heart and Brain.

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80. Suggest one way of discriminating a ware carrying current from a wire carrying no current.

Answer/Explanation

Answer:
Explanation:
Deflection in the compass needle discriminates a wire carrying current from a wire carrying no current.

---

81. State the conclusions that can be drawn from the observation that a current carrying wire deflects a magnetic needle placed near it.

Answer/Explanation

Answer:
Explanation:
Current carrying wire exhibits properties of magnetism which indicate that electricity and magnetism are related phenomena.

---

82. How can you show that the magnetic field produced by a given electric current in the wire decreases as the distance from the wire increases?

Answer/Explanation

Answer:
Explanation:
The decrease in deflection of the magnetic compass needle clearly shows that the magnetic field decreases as we move away from the current-carrying conductor.

---

83. A current carrying straight wire held perpendicular to the plane of paper and current passes through this conductor in the vertically upward direction. What is the direction of magnetic field produced around it?

Answer/Explanation

Answer:
Explanation:
According to right-hand thumb rule, the direction of magnetic field produced around the given conductor is anticlockwise.

---

84. If the circular coil has n turns, the field produced is n times as large as that produced by a single turn. Justify it.

Answer/Explanation

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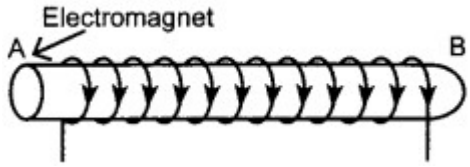
Answer:
Explanation:
This is because the current in each circular turn has the same direction, and the field due to each turn then just adds up along the axis of the coil.



---

85. The diagram shows a coil of wire wound on a soft iron core forming an electromagnet. A current is passed through the coil in the direction indicated by the arrows. Mark the N and S poles produced in the iron core.

Answer/Explanation

Answer:
Explanation:
Using clock face rule A is South pole. B is North pole.

---

86. How will you determine the direction of the magnetic field due to a current-carrying solenoid?

Answer/Explanation

Answer:
Explanation:
Direction of magnetic field: Imagine the current carrying solenoid in your right hand such that the curled fingers are in the direction of current, then the extended thumb will indicate the direction of emerging magnetic field line, i.e. the face of solenoid which has North polarity.

---

87. What will the polarity be of one end of a solenoid if the current appears to be flowing anticlockwise in it ?

Answer/Explanation

Answer:
Explanation:
North pole by using Clock Face Rule.

---

88. Magnetic field inside the solenoid is uniform or non-uniform?

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation: Uniform

---

89. State important features of the magnetic field obtained inside the solenoid. Write one use of solenoid.

Answer/Explanation

Answer:
Explanation:
The field lines inside the solenoid are parallel and closely spaced showing the field is highly uniform, same in strength at all the points and in the same direction.
Solenoid is used for making electromagnet.

---

90. Give one difference between the wires used in the element of an electric heater and in a fuse.

Answer/Explanation

Answer:
Explanation:
Electric wire used in electric heater has a high melting point whereas fuse wire has a low melting point.

---

91. A magnet is hung using a string. How will you identify the poles?

Answer/Explanation

Answer:
Explanation:
The north seeking pole is north pole and the south seeking pole is south pole.

---

92. What is the colour of wire conventionally used for (i) Live, (ii) Earth and (iii) Neutral?

Answer/Explanation

Answer:
Explanation:
(i) Red, (ii) Green (iii) Black.

Fill in the Blanks

1. The magnetic field of a solenoid carrying a current is similar to that of a …….. .
2. The direction of the induced current is given by ……..

PRASANTH KUMAR ROYAL'S

3. A generator converts …….. into …….. .
4. In our houses, we receive AC electric power of …….. V with a frequency of …….. Hz.
5. The direction of magnetic force acting on a charged particle moving in a magnetic field can be found by …….. .
6. According to Fleming's left hand rule, if the first finger points in the direction of …….., the second finger
in the direction of …….., then the thumb will point in the direction of …….. .

Answers

1. bar magnet
2. Fleming's right hand rule
3. mechanical energy, electrical energy
4. 200 V, 50 Hz
5. Fleming's left hand rule
6. magnetic field, current, force acting on the conductor

PRASANTH KUMAR ROYAL'S

Chapter 14 Sources of Energy

1. Energy can neither be created nor destroyed but still everybody discuss about the energy crisis because
(a) Energy transform into different form continuously.
(b) Usable form of energy is dissipated to the surroundings in less usable forms.
(c) Energy is consumed and cannot be used again.
(d) All of these

Answer/Explanation

Answer: d
Explanation:
(d) Energy can neither be created nor be destroyed but usable form is dissipated to surrounding in less usable farm which can't be used again.

---

2. An ideal source of energy should have
(a) higher calorific value
(b) easy transportability
(c) easy accessibility
(d) All of these

Answer/Explanation

Answer: d
Explanation:
(d) These are the characterises of ideal source of energy.

---

3. Fossile fuels are
(a) non-renewable source of energy
(b) renewable source of energy
(c) both (a) and (b)
(d) Neither (a) nor (b)

Answer/Explanation

Answer: a
Explanation:
(a) Fossile fuels were formed over million of years ago and there are only limited reserve. So they are non-renewable source of energy.

PRASANTH KUMAR ROYAL'S

4. Dead organisms are transformed into petroleum and natural gas in
(a) presence of air
(b) absence of air
(c) presence of sunlight
(d) none of the above

Answer/Explanation

Answer: b
Explanation:
(b) absence of air

---

5. Which of the following problem is associated with a burning of coal?
(a) Carbon-dioxide emission
(b) acid rain
(c) ash with toxic metal supurity
(d) all of these.

Answer/Explanation

Answer: d
Explanation:
(d) all of these.

---

6. Select the important factor for the site selection of a thermal power plant.
(a) Distance from the populated area
(b) Availability of fuel
(c) Availability’ of water
(d) Cost of plant

Answer/Explanation

Answer: c
Explanation:
(c) Water is required to produce steam. Thermal power plants are setup near the coal field and transmission of electricity is easy than transporting fuel.

---

7. Select the correct order of energy conversion in thermal power plant-

(*a*)	Meal energy	–	mechanical energy – electrical energy
(*b*)	Chemical energy	–	Mechanical energy – electrical energy
(*c*)	Solar energy	–	electrical energy – mechanical energy
(*d*)	chemical energy	–	solar energy – heat energy

Answer/Explanation

Answer: b
Explanation:
(b) chemical energy – heat energy, mechanical energy, electrical energy

---

8. Hydropower plant are located in the
(a) desert area
(b) plane area
(c) hilly terrains
(d) none-of above

Answer/Explanation

Answer: c
Explanation:
(c) Hydroelectric power plant are generally located in high hilly areas where dam can easily be buit and large reservoir for storage of water can be obtained.

---

9. Biogas is a better fuel than animal dung cake because
(a) biogas has lower calorific value.
(b) animal dung cake has high calorific value
(c) biogas bums smoke and leaves no residue
(d) biogas is used as a fuel for cooking only wheareas dung cake can be used for cooking, illuminant the lanterns.

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer: c
Explanation:
(c) Biogas has high calorific value and leave no residue, no smoke after burning and can be used for domestic purpose, running engins and in gas lanterns for illumination.

---

10. Which of the following organism produces biogas from cow drug sherry in the biogas plant?
(a) aerobic bectria
(b) anaerobic bectria
(c) prolozoa
(d) fungi

Answer/Explanation

Answer: b
Explanation:
(b) In the absence of oxygen, anaerobic micro-organism decomposed the compound of cow- dung sturry to generate biogas.

---

11. Wind is caused due to
(a) uneven heating of earth's surface
(b) rotation of earth
(c) local conditions
(d) All of these

Answer/Explanation

Answer: d
Explanation:
(d) All are the factors that responsible for the blowing of wind.

---

12. What are the disadvantage of solar energy
(a) A large surface area is required collect the solar
(b) Daily average of solar energy varies from 4 to 7 kwh/m2
(c) Highly hazardous toxic material is used in the manufacturing of solar device.
(d) All of the above are disadvantages.

Answer/Explanation

Answer: d
Explanation:
(d) All the points given are the disadvantage age of using solar energy.

PRASANTH KUMAR ROYAL'S

13. The temperature inside the solar cooker ranges from
(a) 500-100°C
(b) 100-140°C
(c) 150-200°C
(d) 70-80°C

Answer/Explanation

Answer: b

Explanation:
(b) The box type solar cooker have a range 100-140°C.

---

14. The use of reflector in the solar cooker is to
(a) Decrease efficiency
(b) create green house effect
(c) increase efficiency
(d) none of these

Answer/Explanation

Answer: c
Explanation:
(c) Reflectors (mirror) are used to focus the sun rays along with heat radiation inside the box to achieve high temperature.

---

15. Solar cells are made of
(a) germanium
(b) silicon
(c) silver
(d) aluminium

Answer/Explanation

Answer: b
Explanation:
(b) special grade silicon is used for making solar cells.

---

16. The material used for interconnection the solar cells in the solar panel is
(a) silicon
(b) silver
(c) aluminium
(d) copper

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer: b
Explanation:
(b) Silver is the best conductor of electricity.

---

17. A solar panel is made by combining in an arrangement
(a) solar concentrator
(b) solar cookers
(c) solar cells
(d) solar chimney

Answer/Explanation

Answer: c
Explanation:
(c) A large number of solar cells connected together in a particular arrangement to deliver useful electrical power is called solar cell panel.

---

18. Tidal energy is a farm of energy obtained from the
(a) motion of surface water in ponds
(b) ocean in the form of tidal waves
(c) tides occurs in the river water
(d) motion of the wave in sea

Answer/Explanation

Answer: b
Explanation:
(b) The energy produced by the surge of ocean water during high and low tides due to difference in sea level is called tidal energy.

---

19. Tidal energy is harnessed by constructing a dam across
(a) narrow opening to the sea
(b) wide opening to the sea
(c) the river in hilly trains
(d) the river in plane areas

Answer/Explanation

Answer: a
Explanation:
(a) Tidal energy is harnessed by constructing a dam near the shores across narrow opening it.

PRASANTH KUMAR ROYAL'S

20. Wave energy is caused due to
(a) strong winds blowing across the sea
(b) kinetic energy possessed by huge waves near the sea shore
(c) potential energy possessed by the stored water
(d) both (a) and (b)

Answer/Explanation

Answer: d
Explanation:
(d) The waves are generated by a strong wind due to solar energy across the sea.

---

21. The working fluid in ocean thermal power plant is
(a) Volatile liquid like ammonia
(b) petrol
(c) charcoal
(d) liquified petroleum gas

Answer/Explanation

Answer: a
Explanation:
(a) volatile liquid like ammonia

---

22. Geothermal energy is
(a) Heat energy in the interior of earth
(b) energy of molten mars exists in the farm of magma inside the earth.
(c) molten lava on the surface of earth
(d) energy obtained from solar thermal electric plants

Answer/Explanation

Answer: c
Explanation:
(c) The heat energy trapped in the certain region of earth’s crust is called geo thermal energy.

---

23. U-235 will undergo fission by
(a) low energy neutrons only
(b) high energy neutrons only
(c) medium energy neutrons
(d) low energy protons only

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer: d
Explanation:
(d) Heavy nucleus such as uranuim-235, when bombarded with low energy neutrons split into lighter nuclear with the liberation of large amount of energy.

---

24. In a hydropower plant
(a) Potential energy possessed by stored water is converted into electricity
(b) Kinetic energy possessed by stored water is converted into potential energy
(c) Electricity is extracted from water
(d) Water is converted into steam to produce electricity.

Answer/Explanation

Answer: a
Explanation:
(a) The stored water behind the dam has a potential energy which charges into the kinetic energy of falling water. This kinetic energy is utilized to rotate the turbine to produce electricity.

---

25. Which is the ultimate source of energy?
(a) Water
(b) Sun
(c) Uranium
(d) Fossil fuels

Answer/Explanation

Answer: b
Explanation:
(b) Sun is the ultimate source of energy directly or indirectly, all the form of energy are desired from solar energy.

---

26. Which one of the following forms of energy leads to least environmental pollution in the process of its harnessing and utilisation?
(a) Nuclear energy
(b) Thermal energy
(c) Solar energy
(d) Geothermal energy

Answer/Explanation

Answer: c
Explanation:

PRASANTH KUMAR ROYAL'S

(c) Solar energy leads to least environmental pollution in the process of its harnessing and utilisation.

---

27. Ocean thermal energy is due to
(a) energy stored by waves in the ocean
(b) temperature difference at different levels in the ocean
(c) pressure difference at different levels in the ocean
(d) tides arising out in the ocean

Answer/Explanation

Answer: b
Explanation:
(b) Energy of warm surface water used to vaporise the low boiling point liquid ammonia. This vapours at high pressure is used to strin the turbines to generate electricity. Deep ocean cold water again condenses the used vapour into liquid.

---

28. The major problem in harnessing nuclear energy is how to
(a) split nuclei?
(b) sustain the reaction?
(c) dispose off spent fuel safely?
(d) convert nuclear energy into electrical energy?

Answer/Explanation

Answer: c
Explanation:
(c) The waste product obtained from nuclear power plant is highly radioactive material and harmful for human beings and environment.

---

29. Which part of the solar cooker is responsible for green house effect?
(a) Coating with black colour inside the box
(b) Mirror
(c) Glass sheet
(d) Outer cover of the solar cooker

Answer/Explanation

Answer: c
Explanation:
(c) Glass lid of solar cooker trapped the heat energy inside the box.

PRASANTH KUMAR ROYAL'S

30. The power generated in a windmill
(a) is more in rainy season since damp air would mean more air mass hitting the blades
(b) depends on the height of the tower
(c) depends on wind velocity
(d) can be increased by planting tall trees close to the tower

Answer/Explanation

Answer: a
Explanation:
(a) About 75% methane is present in bir-gas

---

31. Choose the correct statement
(a) Sun can be taken as an inexhaustible source of energy
(b) There is infinite storage of fossil fuel inside the earth
(c) Hydro and wind energy plants are non-polluting
(d) Waste from a nuclear power plant can be easily disposed off

Answer/Explanation

Answer: c
Explanation:
(c) In rainy season, wind velocity is higher. So the blades of windmill moves with greater speed.

---

32. A good fuel should possess
(a) high ignition temperature
(b) moderate ignition temperature
(c) high calorific value
(d) both high calorific value and moderate ignition temperature

Answer

Answer: d

---

33. The variety of coal which has the highest car-bon content
(a) Anthracite
(b) Peat
(c) Bituminous
(d) Lignite

Answer

Answer: a

PRASANTH KUMAR ROYAL'S

34. Unit of calorific value of a substance is
(a) Kcal
(b) Joules
(c) J kg
(d) J/kg

Answer

Answer: d

---

35. Biogas is formed in the
(a) presence of air only
(b) presence of water only
(c) absence of air only
(d) presence of water and absence of air

Answer

Answer: d

---

36. Solar energy can be directly converted to elec-trical energy by which of the following devices?
(a) solar cooker
(b) solar heater
(c) solar cell
(d) solar geyser

Answer

Answer: c

---

37. Which of the following is the ultimate source of energy?
(a) Water
(b) Sun
(c) Fossil fuels
(d) Uranium

Answer

Answer: b

---

38. Which of the following gases is the main con-stituent of natural gas?
(a) Methane
(b) Ethane

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(c) Propane
(d) Butane

Answer

Answer: a

---

39. Which element is used in solar cells?
(a) Carbon
(b) Silicon
(c) Phosphorous
(d) Sulphur

Answer

Answer: b

---

40. Ocean thermal energy is produced due to
(a) pressure difference at different levels in the ocean.
(b) temperature difference at different levels in the ocean.
(c) energy stored by waves in the ocean.
(d) tides rising out of the ocean.

Answer

Answer: b

---

41. A device in which electricity is produced by the process of controlled nuclear fission reaction is called
(a) nuclear chain reaction
(b) hydel power plant
(c) nuclear reactor
(d) thermal power plant

Answer

Answer: c

---

42. One major problem in harnessing nuclear energy is
(a) converting nuclear energy into electrical energy.
(b) sustaining the reaction.
(e) splitting the nuclei.
(d) disposing off spent fuel easily.

PRASANTH KUMAR ROYAL'S

Answer

Answer: d

---

43. Spent slurry (Bio-waste after obtaining biogas) is used as
(a) fuel
(b) manure
(c) food for livestock
(d) used again for generating biogas

Answer

Answer: b

PRASANTH KUMAR ROYAL'S

Direction (Q44 to Q48): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are . correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.
44. Assertion: Fuel has to be burnt to obtain heat energy.
Reason: The minimum temperature to which a fuel must be heated so that it may catch fire and start burning is known as ignition temperature.

Answer/Explanation

Answer: b
Explanation:
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

---

45. Assertion: The major constituent of biogas is methane.
Reason: Biogas is produced by the aerobic degradation by animal wastes like cow ding in the presence of water.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

---

46. Assertion: Wind energy farms cannot be established every where.
Reason: The wind energy farms can be established only at those places where wind blows for most part of the year.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

47. Assertion: Coke is a better fuel than coal.
Reason: Burning of coke cause air pollution.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

---

48. Assertion: Non-conventional sources of energy are the major source of energy for generating electricity in power plants.
Reason: Coal and petroleum are non- conventional energy sources.

Answer/Explanation

Answer: d
Explanation:
(d) The statement of the Assertion is false but the Reason is true.

---

49. Mirrors used for solar cooker are _____ .

Answer/Explanation

Answer:
Explanation: convex

---

50. A fuel is a good one if its _____ value is high.

Answer/Explanation

Answer:
Explanation: Butane

PRASANTH KUMAR ROYAL'S

51. Geothermal energy is widely trapped in USA and _____ .

Answer/Explanation

Answer:
Explanation: New Zealand

---

52. _____ reaction is more powerful than a fission reaction.

Answer/Explanation

Answer:
Explanation: Fusion

---

53. Ocean thermal energy is used to boil _____ before running the turbine.

Answer/Explanation

Answer:
Explanation: Ammonia

---

54. Artificial satellites and space probes are electrified using _____ .

Answer/Explanation

Answer:
Explanation: Solar cells

---

55. Fossil fuels do not cause pollution. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

56. Acid rain is formed by acidic oxides of carbon, sulphur and nitrogen. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

57. The use of turbine is essential for the production of electrical energy. [True/F alse]

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation: True

---

58. The approximate percentage of energy met by India with the use of hydel energy is 25%. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

59. Windmills require giant structural erection and vast space. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

60. New Zealand is called as “Country of Winds”. [True/False]

Answer/Explanation

Answer:
Explanation: False

Direction (Q49 to Q50): Match Column I with Column II.
61.

Column I	Column II
(a) Fossil fuels	(i) Renewable
(b) Silicon	(ii) Electrical energy
(c) Geothermal energy	(iii) Depleting
(d) Turbine	(iv) Solar cells

Answer/Explanation

Answer:
Explanation:
(a) (iii)
(b) (iv)
(c) (i)
(d) (ii)

62.

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Column I	Column II
(a) Black surface	(i) Water heaters
(b) Turbine	(ii) Solar cell
(c) Semi conductors	(iii) Generators
(d) Digestor	(iv) Bio gas

Answer/Explanation

Answer:
Explanation:
(a) (i)
(b) (iii)
(c) (ii)
(d) (iv)

---

63. Define source of energy.

Answer/Explanation

Answer:
Explanation:
A source of energy is one which can provide sufficient amount of energy in convenient manner over a long period of time.

---

64. Why are the coal, petroleum and natural gas called fossil fuels?

Answer/Explanation

Answer:
Explanation:
Coal, petroleum and natural gas, the common sources of energy, being organic (biotic) in their origin and formed over a long period of time are called fossil fuels.

---

65. If you could use any source of energy for heating your food which one would you prefer? State one reason for your choice.

Answer/Explanation

Answer:
Explanation:
LPG because it does not leave any residue on burning.

---

66. What do you mean by the term ‘thermal power plant’?

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer:
Explanation:
Thermal power plant is the power plant where coal is burnt to produce heat energy which is converted into electrical energy.

---

67. The cost of production of electricity in a thermal power station located in Bihar/ Jharkhand/Orissa is lesser than in Gujarat/ Maharashtra. Do you agree? Justify your answer. [HOTS]

Answer/Explanation

Answer:
Explanation:
Yes, it is because in Bihar/Jharkhand/Orissa, coal for thermal power plant is locally available whereas it has to be transported for any thermal power plant to be located in Gujrat/Maharashtra.

---

68. Which of the following power plants to produce electricity involves more running expenses and why? Thermal power station, hydro power station, an array of solar panel, wind energy farm or geothermal source.

Answer/Explanation

Answer:
Explanation:
Thermal power stations involve more running cost due to continuous use of coal.

---

69. What is acid rain? [CBSE 2013]

Answer/Explanation

Answer:
Explanation:
The rain containing the acidic oxides such as oxides of carbon and traces of nitrogen and sulphur.

---

70. List two non-conventional source of energy. [Delhi 2014]

Answer/Explanation

Answer:
Explanation:
Geothermal, solar, biomass, water, wind are the non-convention source of energy, (any two)

PRASANTH KUMAR ROYAL'S

71. How does technology help in the transformation of energy?

Answer/Explanation

Answer:
Explanation:
Technologoy help us to provide the various means to transform the energy obtained from different source into useful form of energy.

---

72. Justify that the hydropower is a renewable source of energy.

Answer/Explanation

Answer:
Explanation:
Hydropower is generated from water flowing out of the dam and water in the reservoir would be refilled each time it rains through the high altitude rivers on which dam is constructed.

---

73. Why the dams for generating hydroelectricity can be built only in the hilly areas or at the foothill?

Answer/Explanation

Answer:
Explanation:
It is because to generate hydroelectricity water can fall from a considerable height.

---

74. State the main difference between thermal power and hydropower plants based on electricity generation.

Answer/Explanation

Answer:
Explanation:
In thermal power plant, chemical energy of fossil fuel is used while potential energy of stored water is used in hydropower plant to produced electricity.

---

75. Write the energy conversion that takes place in a hydropower plant. [CBSE 2018]

Answer/Explanation

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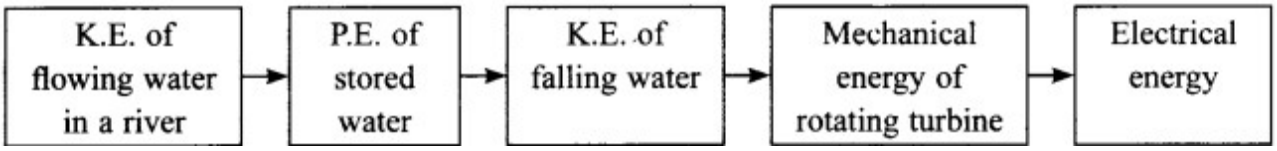
Answer:
Explanation:
The energy transformation taking place at hydropower plants is shown below:



---

76. Name the kind of energy possessed by wind and the device used to harness it.

Answer/Explanation

Answer:
Explanation:
Kinetic energy, wind mill.

---

77. What is the minimum speed of wind to run a windmill to maintain the necessary speed of turbine of an electric generator?

Answer/Explanation

Answer:
Explanation: 15 km/h.

---

78. Name the place in India where the largest wind energy farm has been established and how much electricity does it generate?

Answer/Explanation

Answer:
Explanation:
It is established near Kanyakumari is Tamil Nadu and it generates 380 MW of electricity.

---

79. Which country ranked first in harmessing wind energy for the production of electricity.

Answer/Explanation

Answer:
Explanation: Germany.

---

80. How much land area is needed to establish a wind energy farm for generating 1 MW of electricity?

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Answer/Explanation

Answer:
Explanation:
About 2 hectares of land.

---

81. Which country is known as ‘country of winds’?

Answer/Explanation

Answer:
Explanation: Denmark.

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82. Why a solar cooker painted black form outside? [CBSE 2014]

Answer/Explanation

Answer:
Explanation:
Black surface absorbs more heat as compared to white or reflecting surface under identical conditions.

---

83. Which metal is used to connect various solar cells?

Answer/Explanation

Answer:
Explanation: Silver.

---

84. A solar cell transforms energy of one form into another. What are these two ferm of energy?

Answer/Explanation

Answer:
Explanation:
A solar cell transform solar energy into electrical energy.

---

85. Name any two elements that are used in fabricating solar cells. [CBSE 2014, 2012]

Answer/Explanation

Answer:
Explanation: Germanium, Silicon.

---

86. Define solar panel.

Answer/Explanation

Answer:
Explanation:
A group of solar cells arranged in a definite pattern is called a solar panel.

---

87. What is the voltage developed by a typical solar cell?

Answer/Explanation

Answer:
Explanation:
A voltage of about 0.5 V to 1 V is developed by a typical solar cell.

---

88. How do satellites get energy to operate all the devices ?

Answer/Explanation

Answer:
Explanation:
From solar energy conversion using solar cell panels.

---

89. Name the main component of solar cell. [DoE]

Answer/Explanation

Answer:
Explanation:
Solar cell consists of different thin layers of silicon.

---

90. Name a device which can be used for cooking so as to save fuel.

Answer/Explanation

Answer:
Explanation: Solar cooker.

---

91. Which gas is formed by decomposing plant and animal matter in masting areas?

Answer/Explanation

Answer:
Explanation: Methane.

PRASANTH KUMAR ROYAL'S

92. Name the part of a biogas plant where reactions take place in the absence of oxygen. [CBSE 2014]

Answer/Explanation

Answer:
Explanation: Digester chamber.

93. Bio-gas is also known as gobar gas. Justify. [CBSE 2011]

Answer/Explanation

Answer:
Explanation:
Starting material for biogas is mainly cow-dung. So, it is also known as gobar gas.

94. Name the microorganism which decompose slurry into biogas.

Answer/Explanation

Answer:
Explanation: Anaerobic bacteria.

95. List two nutrients that the slurry left behind in the biogas plant contain. [CBSE 2011]

Answer/Explanation

Answer:
Explanation: Nitrogen and phosphorous.

96. Aspart from cow-dung, name other materials which can be used for making bio gas.

Answer/Explanation

Answer:
Explanation:
Various plant materials like the residue after harvesting the crops, vegetable waste and sewage.

97. Why is CNG considered as environmental friendly fuel?

Answer/Explanation

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Answer:
Explanation:
CNG does not produce any harmful gases on burning. So atmosphere does not gets polluted.

Fill in the Blanks

1. In the wind energy farms, the wind speed should be higher than ……. to maintain the required speed of
the turbine.
2. The energy produced during controlled ……. reactions is used for generating electricity at nuclear
power plants.
3. The energy available due to the difference in the temperature of water at the surface of the ocean and at
deeper levels is called ……. .
4. Biogas is produced by the ……. of animal wastes or plant wastes in the presence of water.
5. Biogas is an excellent fuel as it contains 75% ……. along with other gases like ……., ……. and ……. .

Answers

1. 15 km/h
2. nuclear fission
3. Ocean thermal energy
4. anaerobic degradation
5. methane, carbon dioxide, hydrogen and hydrogen sulphide

Chapter 15 Our Environment

1. Which of the following is biodegradable?
(a) Plastic mugs
(b) Leather belts
(c) Silver foil
(d) Iron nails

Answer

Answer: b

---

2. Which of the following is non- biodegradable?
(a) Wool
(b) Nylon
(c) Animal bones
(d) Tea leaves

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Answer

Answer: b

---

3. Which one of the following will undergo fastest bio-degradation?
(a) Mango seed
(b) Wood
(c) Mango peel
(d) Mango pulp

Answer

Answer: d

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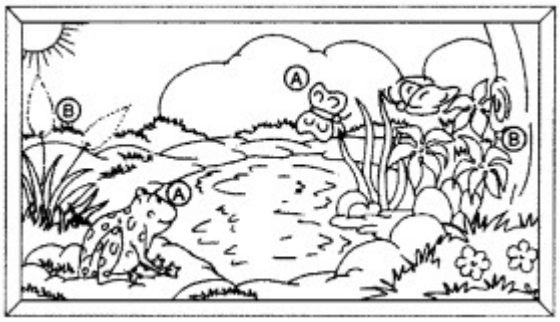
4.



An ecosystem is represented in the figure given above. This ecosystem will be self- sustaining if
(a) the type of organisms represented by B are eliminated.
(b) materials cycle between the organisms labelled A and the organisms labelled B.
(c) the organisms labelled A outnumber the organisms labelled B.
(d) the organisms labelled A are equal in number to the organisms labelled B.

Answer

Answer: b

---

5. In an ecosystem, herbivores represent
(a) producers
(b) primary consumers
(c) secondary consumers
(d) decomposers

Answer

Answer: b

---

6. Trophic level in an ecosystem represents
(a) oxygen level
(b) water level
(c) energy level
(d) salt level

Answer

Answer: c

---

7. A food chain comprising birds, green plants, fish and man.
The concentration of harmful chemical entering the food chain will be maximum in
(a) green plants
(b) man
(c) birds
(d) fish

Answer

Answer: b

---

8. First link in any food chain is usually green plants because
(a) they are widely distributed
(b) they are fixed at one place in the soil
(c) they alone have the capacity to synthesise food using sunlight
(d) there are more herbivores than carnivores

Answer

Answer: c

---

9. Which of the following statements about food chain and energy flow through ecosystem is false?
(a) Food webs include two or more food chains.
(b) All organisms that are not producers are consumers.
(c) A single organism can feed at several trophic levels.
(d) Detritivores feed at all trophic levels except the producer level.
(e) The lower the trophic level at which an organism feeds, the more energy available.

Answer

Answer: d

---

10. Which of the following is a logical sequence of food chain
(a) producer → consumer → decomposer

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(b) producer → decomposer → consumer
(c) consumer → producer → decomposer
(d) decomposerproducer → consumer

Answer

Answer: a

---

11. Which of the following is an autotroph?
(a) Lion
(b) Insect
(c) Tree
(d) Mushroom

Answer

Answer: c

---

12. In the garden ecosystem, which of the following are producers?
(a) Insects
(b) Snakes
(c) Grasses
(d) Rabbits

Answer

Answer: c

---

13. Which one of the following is an artificial ecosystem?
(a) Pond
(b) Crop field
(c) Lake
(d) Forest

Answer

Answer: b

---

14. An ecosystem includes
(a) all living organisms
(b) non-living objects
(c) both living organisms and non-living objects
(d) sometimes living organisms and sometimes nonliving objects

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Answer

Answer: c

---

15. Excessive exposure of humans to UV-ray s results in
(i) damage to immune system
(ii) damage to lungs
(iii) skin cancer
(iv) peptic ulcer
(a) (i) and (ii)
(b) (ii) and (iv)
(c) (i) and (iii)
(d) (iii) and (iv)

Answer

Answer: c

---

16. Which group of organisms are not constituents of a food chain?
(a) Grass, lion, rabbit
(b) Plankton, man, fish, grasshopper
(c) Wolf, grass, snake, tiger
(d) Frog, snake, eagle, grass, grasshopper

Answer

Answer: c

---

17. If a grasshopper is eaten by a frog, then the energy transfer will be from
(a) producer to decomposer
(b) producer to primary consumer
(c) primary consumer to secondary consumer
(d) secondary consumer to primary consumer

Answer

Answer: c

---

18. Excessive exposure to ultraviolet radiation causes
(a) inflammation of liver
(b) cancer of skin
(c) damage to the lungs
(d) jaundice

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Answer

Answer: b

---

19. Which one of the following is an artificial ecosystem?
(a) Lake
(b) Forest
(c) Pond
(d) Crop field

Answer

Answer: d

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20. Acid rain is caused by the oxides of
(a) carbon
(b) nitrogen only
(c) sulphur only
(d) sulphur and nitrogen

Answer

Answer: d

---

21. Which of the following is biodegradable?
(a) Aluminium can
(b) Polythene bag
(c) Cowdung
(d) DDT

Answer

Answer: c

---

22. Which of the following is an abiotic component of an ecosystem?
(a) Humus
(b) Bacteria
(c) Plants
(d) Fungi

Answer

Answer: a

---

23. Which one of the following pairs belong to the category of primary consumers?
(a) Eagle and snake
(b) Grasshoppers & cattle
(c) Snake and frog
(d) Water beetles & fish

Answer

Answer: b

---

24. Which of the following chemicals causes depletion of the ozone layer?
(a) Carbon tetrachloride
(b) Methane
(c) Chloro fluoro carbon
(d) Carbon monoxide

Answer

Answer: c

---

25. In a food chain, the third trophic level is always occupied by
(a) herbivore
(b) carnivore
(c) decomposer
(d) producer

Answer

Answer: b

---

26. The depletion of the ozone layer causes
(a) global wanning
(b) earthquakes
(c) increased UV radiations
(d) acid rain

Answer

Answer: c

---

27. In the given foodchain if the amount of energy at the fourth trophic level is 4 kJ, what will be the energy available at the producer level?
Grass → Grasshopper → Frog → Snake
(a) 4 kJ

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(b) 40 kJ
(c) 400 kJ
(d) 4000 kJ

Answer

Answer: d

---

28. What will happen if all the deer are killed in the given food chain?
Grass → Deer → Lion
(a) The population of grass decreases.
(b) The population of lions increases.
(c) The population of lions remains unchanged.
(d) The population of lions decreases and grass increases.

Answer

Answer: d

---

29. Which of the two in the following sets belong to the same trophic level?
(a) Grass; Grasshopper
(b) Goat; Spider
(c) Hawk ; Rat
(d) Frog ; Lizard

Answer

Answer: d

Direction (Q30 to Q34): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.
30. Assertion: Vegetarian food habit is more beneficial to organisms.
Reason: Only 10% energy is available as food from one trophic level to next.

Answer/Explanation

Answer: a
Explanation:

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(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

31. Assertion: Accumulation of harmful chemicals is maximum in case of organisms at higher trophic level.
Reason: Food chain normally do not go beyond 3 or 4 trophic level.

Answer/Explanation

Answer: b
Explanation:
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

---

32. Assertion: Ozone layer is getting depleted at upper atmosphere which is a cause of concern.
Reason: CFC reacts with ozone and breaks it.

Answer/Explanation

Answer: a
Explanation:
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

---

33. Assertion: Autotrophs can produce food on its own.
Reason: Green plants can absorb 1% energy of sunlight that fall on the leaves.

Answer/Explanation

Answer: b
Explanation:
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

---

34. Assertion: Biodegradable waste and non biodegradable waste should be discarded separately,
Reason: Biodegradable waste are not harmful.

Answer/Explanation

Answer: c
Explanation:
(c) Assertion is true but the Reason is false.

PRASANTH KUMAR ROYAL'S

35. A food chain comprises of frog, snake, grass and grasshopper. The organisms at third trophic level is _____ .

Answer/Explanation

Answer:
Explanation: frog

---

36. In an ecosystem, various organisms are linked forming interconnections such a condition is termed as _____ .

Answer/Explanation

Answer:
Explanation: Food web

---

37. Ultraviolet radiation from sunlight causes a reaction which produces _____ .

Answer/Explanation

Answer:
Explanation: O_3

---

38. Burning of waste substances usually at high temperature of over 1000° C to convert them into ashes is called _____ .

Answer/Explanation

Answer:
Explanation: Incineration

---

39. Animal dung is _____ waste.

Answer/Explanation

Answer:
Explanation: Biodegradable

---

40. Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as _____ .

Answer/Explanation

Answer:
Explanation: biomagnification

PRASANTH KUMAR ROYAL'S

41. Depletion of ozone is mainly due to _____ .

Answer/Explanation

Answer:
Explanation: chlorofluorocarbon compounds

42. Organisms which synthesise carbohydrates from inorganic compounds using radiant energy are called _____ .

Answer/Explanation

Answer:
Explanation: producers

43. Flow of energy in an ecosystem is always _____ .

Answer/Explanation

Answer:
Explanation: unidirectional

44. Decomposers get their energy directly from autotrophs. [True/False]

Answer/Explanation

Answer:
Explanation: False

45. Ozone layer presents harmful infrared radiation. [True/False]

Answer/Explanation

Answer:
Explanation: False

46. Factors such as light, temperature, pressure and humidity are considered as biotic components. [True/False]

Answer/Explanation

Answer:
Explanation: False

PRASANTH KUMAR ROYAL'S

47. Food chains generally consist of three or four organisms. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

48. Disposal of waste means recycling of wastes. [True/False]

Answer/Explanation

Answer:
Explanation: False

PRASANTH KUMAR ROYAL'S

49. The disposal of wastes by putting it in low-lying areas of ground and covering it with earth is called landfill. [True/False]

Answer/Explanation

Answer:
Explanation: True

Direction: Match Column I with Column II.
50.

Column I	Column II
1. Producers	(i) Suspended
2. Primary consumers	(ii) Group of colours
3. Secondary consumers	(iii) Scattering
4. Decomposers	(iv) Changing

Answer/Explanation

Answer:
Explanation:
1 (iii)
2 (i)
3 (iv)
4 (ii).

---

51. We often use the word environment. What does it mean? [Foreign 2016]

Answer/Explanation

Answer:
Explanation:
It is the sum total of all external conditions and influences that affect the life and development of an organism, i.e. the environment includes all the physical or abiotic and biological or biotic factors.

---

52. Why is it necessary to conserve our environment? [AI2011]

Answer/Explanation

Answer:
Explanation:
It is necessary to conserve our environment to prevent depletion of natural resources and environmental damage, thereby sustaining life.

---

53. Select two non-biodegradable substances from the following wastes generated in a kitchen: spoilt food, paper bags, milk bags, vegetable peels, tin cans, used tea leaves. [Delhi 2012]

Answer/Explanation

Answer:
Explanation:
Milk bags and tin cans.

---

54. Why should biodegradable and non- biodegradable wastes be discarded in two separate dustbins? [AI 2017(C); Delhi 2013, 15]

Answer/Explanation

Answer:
Explanation:
The biodegradable and non-biodegradable wastes must be discarded in two different dustbins because biodegradable Wastes gets decomposed by the microorganisms whereas non-biodegradable wastes can be recycled and reused.

---

55. How should we dispose waste?

Answer/Explanation

Answer:
Explanation:
By segregating biodegradable and non-biodegradable material.

---

56. Why is plastic called non-biodegradable?

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer:
Explanation:
Plastic cannot be broken-down into smaller particles by the action of bacteria and hence it is called non-biodegradable.

---

57. What is biodegradable plastic?

Answer/Explanation

Answer:
Explanation:
Plastics that are decomposed by the action of living organisms such as bacteria are called biodegradable plastic.

---

58. Name few biodegradable substances you generate.

Answer/Explanation

Answer:
Explanation:
Waste food, paper, cloth, etc.

---

59. List two natural ecosystems. [Delhi 2016]

Answer/Explanation

Answer:
Explanation:
Two natural ecosystems are forest and river.

---

60. List two biotic components of a biosphere. [Delhi 2016]

Answer/Explanation

Answer:
Explanation:
Two biotic components of a biosphere are plants and animals.

---

61. Name any two man-made ecosystems. [Foreign 2017]

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation:
Agricultural/crop fields, aquaria, gardens. (any two)

---

62. Why are green plants called producers? [Delhi 2016]

Answer/Explanation

Answer:
Explanation:
Green plants can produce their own food by photosynthesis from inorganic compounds and hence are called producers.

---

63. What will be the amount of energy available to the organism of the 2nd trophic level of a food chain, if the energy available at the first trophic level is 10,000 joules? [AI 2015]

Answer/Explanation

Answer:
Explanation:
100 Joules of energy will be available to the organism of the 2nd trophic level.

---

64. The first trophic level in a food chain is always a green plant. Why? [AI 2015]

Answer/Explanation

Answer:
Explanation:
Only green plants can make their own food from sunlight. Green plants therefore, always occupy the 1st trophic level in a food chain.

---

65. Which of the following are always at the second trophic level of the food chains? [AI 2015]
Carnivores, Autotrophs, Herbivores

Answer/Explanation

Answer:
Explanation:
Herbivores are always at the 2nd trophic level.

---

66. The following organisms form a food chain. Which of these will have the highest concentration of non-biodegradable chemicals? Name the phenomenon associated with it. [Foreign 2015]
Insects, Hawk, Grass, Snake, Frog.

PRASANTH KUMAR ROYAL'S

Answer/Explanation

Answer:
Explanation:
Hawk will have highest concentration of non-biodegradable chemicals. The phenomenon is called biomagnification.

---

67. List two criteria of measuring the biodiversity of an area. [Foreign 2014]

Answer/Explanation

Answer:
Explanation:
One measure of the biodiversity of an area is the number of species found there. Secondly, the range of different life forms is also important.

---

68. Name two decomposers operating in our cosystem. [AI 2011, Delhi 2012]

Answer/Explanation

Answer:
Explanation: Bacteria and fungi.

---

69. In a food chain, 10,000 joules of energy is available to the producer. How much energy will be available to the secondary consumer to transfer it to the tertiary consumer? [AI 2012]

Answer/Explanation

Answer:
Explanation:
10J of energy will be available to the secondary consumer to transfer to the tertiary consumer.

---

70. Consider the following food chain which occurs in a forest:
Grass → Deer → Lion
If 10000 J of solar energy is available to the grass, how much energy would be available to the deer to transfer it to the lion? [Foreign 2012]

Answer/Explanation

Answer:
Explanation:
1 J energy will be available to deer to transfer it to lion.

PRASANTH KUMAR ROYAL'S

71. In the following food chain, 100 J of energy is available to the lion. How much energy was available to the producer? [AI 2017]
Plants → Deer → Lion

Answer/Explanation

Answer:
Explanation:
1,000,000 J of energy was available to the producer.

---

72. Which of the following belong to the first trophic level of a food chain?
Grass, Grasshopper, Plants, Rat, Tiger [Foreign 2012]

Answer/Explanation

Answer:
Explanation:
Grass and plants belong to the 1st trophic level of a food chain.

---

73. What are the various steps in a food chain called? [Delhi 2011]

Answer/Explanation

Answer:
Explanation:
The various steps in a food chain are called trophic levels.

---

74. Give an example to illustrate that indiscriminate use of pesticides may result in the degradation of the environment. [AI 2011]

Answer/Explanation

Answer:
Explanation:
The pesticides used in crop field are washed down into the water bodies. From water bodies, these are absorbed by the aquatic plants and animals of a food chain and thereby degrades the environment.

---

75. When plants are eaten by primary consumers, a great deal of energy is lost as heat to the environment and some amount goes in carrying out various life processes. State the average percentage of energy lost in this manner. [HOTS]

Answer/Explanation

PRASANTH KUMAR ROYAL'S

Answer:
Explanation:
The average percentage of energy lost when plants are eaten by primary consumers is 90%.

---

76. Write the full name of the group of compounds mainly responsible for the depletion of ozone layer. [Foreign 2015]

Answer/Explanation

Answer:
Explanation: CFC → Chlorofluorocarbon

---

77. What is a consumer?

Answer/Explanation

Answer:
Explanation:
Organisms which depend upon producers for food.

---

78. What happens to Sun's energy that fall on green plants?

Answer/Explanation

Answer:
Explanation:
Green plants absorb 1% of Sun's energy that falls on their leaves.

---

79. How much energy one trophic level gets from another?

Answer/Explanation

Answer:
Explanation:
Each trophic level makes 10% energy available to next trophic level.

---

80. What happens when a harmful chemical enters a food chain?

Answer/Explanation

Answer:
Explanation:
Its concentration increases with increase in trophic level.

PRASANTH KUMAR ROYAL'S

81. Why does energy available at each trophic level diminish progressively?

Answer/Explanation

Answer:
Explanation:
Energy available at each trophic level diminishes progressively due to loss of energy at each level.

---

82. Define Ozone hole.

Answer/Explanation

Answer:
Explanation:
Decline in the thickness of ozone layer in Antartica is termed as ozone hole.

---

83. Write the name and formula of a molecule made up of three atoms of oxygen. [AI 2012]

Answer/Explanation

Answer:
Explanation:
Ozone and its chemical formula is O_3.

---

84. Why did United Nations act to control the production of chlorofluorocarbons (CFCs) used in refrigerators? [Delhi 2011]

Answer/Explanation

Answer:
Explanation:
CFCs depletes the ozone layer around the earth, hence its production is controlled by United Nations.

---

85. Which disease is caused in human beings due to depletion of ozone layer in the atmosphere? [HOTS]

Answer/Explanation

Answer:
Explanation:
Skin cancer is caused in human beings due to a depletion of ozone layer in the atmosphere.

---

86. What is the full form of CFC and UNEP?

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Answer/Explanation

Answer:
Explanation:
CFC: Chlorofloro carbon.
UNEP: United Nation Environmental Programmes.

---

87. Some time back, Kulhadas, that is disposable cups made up of clay, were suggested as an alternative. Why Kulhads are not being used in trains now? [HOTS]

Answer/Explanation

Answer:
Explanation:
Manufacturing Kulhads on large scale would result in the depletion of fertile top soil making the land inadequate for the cultivation of crops.

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Fill in the Blanks

1. Those waste materials which can be broken down to non-poisonous susbtances in nature in due course of time by the action of micro-organisms are called …….. wastes.
2. The waste materials which can not be broken down into harmless substances in nature are called …….. .
3. …….. is the ultimate source of energy.
4. In 1987 …….. succeeded in forging an agreement to freeze CFC production at 1986 levels.
5. Ozone at the higher levels of atmosphere is a product of UV radiation acting on …….. molecule.
6. …….. can be classified as herbivores, carnivores, omnivores and parasites.

Answers

1. biodegradable
2. non-biodegradable wastes
3. Sun
4. United Nations Environment Programme (UNEP)
5. oxygen (O_2)
6. Consumers

Chapter 16 Management of Natural Resources

1. Which one of the following is an example of renewable resource ?
(a) Coal

(b) Petroleum
(c) Wildlife
(d) Natural gas

Answer

Answer: c

MCQs on Management of Natural Resources Class 10 Question 2. Which one of the following is an example of nonrenewable resource?
(a) Water
(b) Vegetation
(c) Wind
(d) Coal and minerals

Answer

Answer: d

---

3. Which of the following are to be managed for sustainable development?
(a) Industries (b) Forests
(c) Crops (d) Resources

Answer

Answer: d

---

4. Which of the following is the ‘biodiversity hot spots’ ?
(a) Rivers
(b) Forests
(c) Deserts
(d) Oceans

Answer

Answer: b

---

5. When we destroy a forest, we destroy
(a) the trees
(b) population of wildlife
(c) the environment
(d) food and shelter of wild animals

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Answer

Answer: c

---

6. Which of the following community in Rajasthan has a religious tenet of conservation of forest and wildlife ?
(a) Agarwal
(b) Jaishwal
(c) Bishnoi
(d) Jain

Answer

Answer: c

---

7. Which of the following canals brought about greenery in Rajasthan ?
(a) Rajiv Gandhi Canal
(b) Indira Gandhi Canal
(c) Jawaharlal Canal
(d) Mahatma Gandhi Canal

Answer

Answer: b

---

8. Which of the following is the age old concept of water harvesting system in Madhya Pradesh ?
(a) Bundhis
(b) Ponds
(c) Bandharas
(d) Nadis

Answer

Answer: a

---

9. Surangams are the age-old concept of water harvesting in
(a) Karnataka
(b) Kerela
(c) Tamil Nadu
(d) Andhra Pradesh

Answer

Answer: b

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---

10. Which of the following is not an use of forest ?
(a) Controls floods.
(b) Used to make paper.
(c) Causes soil erosion.
(d) Resin, gum and drugs are obtained.

Answer

Answer: c

---

11. From the list given below pick the item that is not a natural resource
(a) Soil
(b) Water
(c) Electricity
(d) Air

Answer

Answer: c

---

12. The main cause for abundant coliform bacteria in the river Ganga is
(a) disposal of human excreta directly
(b) discharge of effluents from electroplating industries
(c) washing of clothes
(d) immersion of ashes.

Answer

Answer: a

---

13. Among the statements given below select the ones that correctly describe the concept of sustainable development
(i) Planned growth with minimum damage to the environment
(ii) Growth irrespective of the extent of damage caused to the environment
(iii) Stopping all developmental work to conserve the environment
(iv) Growth that is acceptable to all the stakeholders
(a) (i) and (iv)
(b) (ii) and (iii)
(c) (ii) and (iv)
(d) (iii) only

Answer

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Answer: a

---

14. In our country, vast tracts of forests are cleared and a single species of plant is cultivated. This practice promotes
(a) biodiversity in the area
(b) monoculture in the area
(c) growth of natural forest
(d) preserves the natural ecosystem in the area

Answer

Answer: b

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15. Expand the abbreviation GAP
(a) Governmental Agency for Pollution Control
(b) Gross Assimilation by Photosynthesis
(c) Ganga Action Plan
(d) Governmental Agency for Animal Protection

Answer

Answer: c

---

16. Ground water will not be depleted due to
(a) afforestation
(b) thermal power plants
(c) loss of forest, and decreased rainfall
(d) cropping of high water demanding crops

Answer

Answer: a

---

17. Pick the right combination of terms which has no fossil fuel.
(a) Wind, ocean and coal
(b) Kerosene, wind and tide
(c) Wind, wood, sun
(d) Petroleum, wood, sun

Answer

Answer: c

---

18. Environment Day falls on
(a) 28th February
(b) 23rd March
(c) 5th June
(d) 16th August

Answer

Answer: c

---

19. The pH range most conducive for life of fresh water plants and animals is
(a) 6.5 – 7.5
(b) 2.0 – 3.5
(c) 3.5 – 7.0
(d) 9.0 – 10.5

Answer

Answer: a

---

20. Which environmental problem is associated with the construction of high rise dams?
(a) A large number of human settlements are submerged in the water.
(b) It contributes to deforestation and loss of biodiversity.
(c) It involves the spending of huge amounts of money.
(d) All the above.

Answer

Answer: d

---

21. Sardar Sarovar Dam is constructed on which river?
(a) Ganga
(b) Sutluj
(c) Narmada
(d) Kaveri

Answer

Answer: c

---

22. What is the purpose of rain-water harvesting?
(a) To hold rain water on the surface of the earth.
(b) To recharge ground water.

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(c) To use water for the irrigation of crops.
(d) To rear fish

Answer

Answer: b

---

23. What are the three R's to save the environment?
(a) Reduce, Recycle, Reuse
(b) Replenish, Reduce, Reuse
(c) Reconstruct, Recycle, Reduce
(d) Reduce, Recycle, Remove

Answer

Answer: a

---

24. Expand the abbreviation GAP
(a) Government Action Plan
(b) Ganga Action Plan
(c) Government Agency for Pollution Control
(d) Government Animal Protection Plant

Answer

Answer: b

---

25. The Indira Gandhi Canal has brought greenery to considerable areas of
(a) Gujarat
(b) Rajasthan
(c) Bihar
(d) Madhya Pradesh

Answer

Answer: b

---

26. Which gas is formed, when fossil fuels are burnt in insufficient air (oxygen)?
(a) Carbon dioxide
(b) Carbon monoxide
(c) Both CO_2 and CO
(d) Neither CO_2 nor CO

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Answer

Answer: b

---

27. The bacteria present in contaminated water is _____ .

Answer/Explanation

Answer:
Explanation: Coliform

---

28. Large-scale deforestation decreases _____ .

Answer/Explanation

Answer:
Explanation: Rainfall

---

29. In the Arabari forest range of Midnapore district involvement of villagers helped to recover trees of _____ .

Answer/Explanation

Answer:
Explanation: Sal

---

30. Sanctuaries are established to _____ .

Answer/Explanation

Answer:
Explanation: Protect animals

---

31. Red Data book provides a list of _____ .

Answer/Explanation

Answer:
Explanation: Rare, endangered or endemic species

---

32. Sardar Sarovar Dam is situated on river _____ .

Answer/Explanation

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Answer:
Explanation: Narmada

---

33. Tehri Dam is being constructed on _____ .

Answer/Explanation

Answer:
Explanation: Ganga

---

34. Kulhs system of irrigation is common in _____ .

Answer/Explanation

Answer:
Explanation: Himachal Pradesh

---

35. Soil and water are non-renewable natural resources. [True/False]

Answer/Explanation

Answer:
Explanation: False

---

36. Revival of ancient systems of water harvesting is better than big dams. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

37. Monoculture forestry is more suitable for industries but it is not good for the environment. [True/False]

Answer/Explanation

Answer:
Explanation: True

---

38. Control of local people over their own water resources may cause mismanagement and over-exploitation of these resources. [True/False]

Answer/Explanation

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Answer:
Explanation: False

---

39. The river water is said to be polluted with acidic wastes when the pH of river water above 7. [True/False]

Answer/Explanation

Answer:
Explanation: False

Direction (Q40 to Q41): Match Column I with Column II.
40.

Column I	Column II
(i) Reduce	(A) Reprocess to make desired things
(ii) Recycle	(B) Use again and again.
(iii) Reuse	(C) Sustainable development.
(iv) Safe disposal of waste	(D) Less use of things.

Answer/Explanation

Answer:
Explanation:
(i) (D)
(ii) (A)
(iii) (B)
(iv) (C)

41.

Column I	Column II
(i) Himachal Pradesh	(A) Surangams
(ii) Rajasthan	(B) Bandharas
(iii) Bihar	(C) Kulhs
(iv) Karnataka	(D) Khadins
	(E) Kattas
	(F) Ahars

Answer/Explanation

Answer:
Explanation:
(i) (C)
(ii) (D)

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(iii) (F)
(iv) (E)

---

42. Define the term ‘Conservation of environment’. [HOTS]

Answer/Explanation

Answer:
Explanation:
Conservation of environment means ‘to keep safe the environment as it is’, i.e. the sensible use of the earth’s natural resources in order to avoid excessive degradation and betterment of the environment.

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43. What are the two kinds of natural resources? [HOTS]

Answer/Explanation

Answer:
Explanation: Water and forest.

---

44. How natural resources are protected?

Answer/Explanation

Answer:
Explanation:
With the help of various national and international laws and regulations.

---

45. What do you call the resources, viz, coal, petroleum, water, wildlife, etc.?

Answer/Explanation

Answer:
Explanation: Natural resources.

---

46. What is Wildlife?

Answer/Explanation

Answer:
Explanation:
It comprises of living beings which occur in natural habitats and are neither domesticated nor cultivated.

---

47. Who are called forest stakeholders? [DoE]

Answer/Explanation

Answer:
Explanation:
Forest stakeholders include all those people who either live in forest or near to forest and depend on forest to meet their day to day need.

---

48. How does increasing demand for energy adversely affect our environment? [HOTS]

Answer/Explanation

Answer:
Explanation:
To meet the increased demand for energy, more and more natural resources are exploited. Pollutants are emitted during exploitation and use of natural resources which affect our environment.

---

49. A person lives near a forest. Make a list of four items which he can get from the forest to meet his daily needs.

Answer/Explanation

Answer:
Explanation:
Timber, Firewood, honey and fruits.

---

50. Name any two forest products, each of which is the basis for some industry. [HOTS]

Answer/Explanation

Answer:
Explanation:
(i) Pine wood for matchbox industry
(ii) Bamboo for paper industry

---

51. State an instance where human intervention saved the forests from destruction. [HOTS]

Answer/Explanation

Answer:
Explanation:
Human intervention saved the Arabari forest range of West Bengal from destruction with active and willing participation of local community. The Sal forest of Arabari underwent a remarkable recovery.

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52. Name two industries based on forest produce. [Allahabad 2019]

Answer/Explanation

Answer:
Explanation:
Timber industry, paper manufacturing industry, lac industry and sports equipment industry. (Any two)

53. Name one river which gets polluted while passing through towns of Haridwar, Kanpur, Allahabad, Patna and Howrah?

Answer/Explanation

Answer:
Explanation:
Ganga.

54. Name the most common practice used to recharge ground water.

Answer/Explanation

Answer:
Explanation:
Rain water harvesting.

55. What are the obj ectives of Namami Gange Programme?

Answer/Explanation

Answer:
Explanation:
Namami Gange Programme was launched to accomplish twin objectives of effective abatement of pollution and rejuvenation of river Ganga.

56. When was National Mission for Clean Ganga set up?

Answer/Explanation

Answer:
Explanation:
National Mission for Clean Ganga was set up in October, 2016.

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57. Who won the Stockholm Water Prize in 2015?

Answer/Explanation

Answer:
Explanation:
Dr. Rajendra Singh won the Stockholm Water Prize in 2015.

---

58. Name some traditional water harvesting systems in India.

Answer/Explanation

Answer:
Explanation:
Traditional water harvesting systems are Khadims, tanks, bandharas, tals, bundhis, pynes etc.

---

59. State the main purpose of rain-water harvesting.

Answer/Explanation

Answer:
Explanation:
It is done to recharge the ground water by percolating water under the soil.

---

60. What types of fuels are coal and petroleum?

Answer/Explanation

Answer:
Explanation: Fossil fuels.

---

61. What action Government has taken to save the river Ganga from pollution?

Answer/Explanation

Answer:
Explanation:
Government launched Ganga Action Plan in 1985.

---

62. Name the bacteria whose presence in water indicate contamination of water.

Answer/Explanation

Answer:
Explanation: Coliform.

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63. What does coliform presence in Ganga water mean?

Answer/Explanation

Answer:
Explanation:
It means contamination by disease causing microorganisms.

64. You must have heard the word ‘water harvesting.’ What does it mean?

Answer/Explanation

Answer:
Explanation:
It means capturing rain water or run off in a local area.

65. What is the main purpose of rain water harvesting?

Answer/Explanation

Answer:
Explanation:
To make rain water percolate under the soil so as to recharge ‘ground water’.

66. How long will the known reserves of coal and petroleum last with present rate of consumption?

Answer/Explanation

Answer:
Explanation:
The coal reserve will last for about 200 years and petroleum will last us for about 40 years.

67. Which fossil fuel is conserved when we use bicycle for covering short distances instead of vehicle?

Answer/Explanation

Answer:
Explanation: Petroleum.

68. Name a clean fuel other than LPG and Natural gas.

Answer/Explanation

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Answer:
Explanation: CNG.

---

69. Name two fossil fuels.

Answer/Explanation

Answer:
Explanation: Coal and petroleum.

Fill in the Blanks

1. The management of …… resources requires a long term perspective.
2. …… are ‘biodiverse hotspots’.
3. The Government of India, has recently instituted an ‘Amrita Devi Bishnoi National Award’ for …… in the memory of Amrita Devi Bishnoi.
4. ‘Khadin’ system of rain-water harvesting is practiced in …… .
5. The Chipko Andolan originated from an incident in a remote village called.’…….’ in Garhwal.

Answers

1. natural
2. Forests
3. wildlife conservation
4. Rajasthan
5. Reni

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