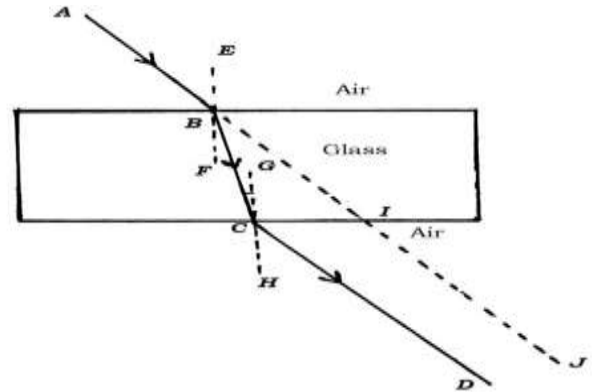


Part A - Physics

I. Four alternatives are given for each of the following questions. Choose the correct alternative and write the complete answer along with its letter of alphabet. $14 \times 1 = 14$

1. Identify the incident ray in the given figure.

- (A) CD
- (B) BC
- (C) AB
- (D) IJ.



2. Nature, position of the image and type of lens used when the magnification is (-1).

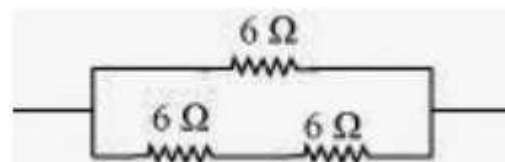
- A) Real, inverted and enlarged image beyond $2F_2$ obtained from concave lens.
- B) Virtual , erect and diminished image at $2F_1$ obtained from concave lens.
- C) Real , erect and enlarged image at $2F_2$ obtained from convex lens
- D) Real, inverted and similar sized image at $2F_2$ obtained from convex lens.

3. Distance between optical center and principle focus of a convex lens is

- (A) radius (B) focal length (C) linear length (D) Principal axis

4. Total resistance of the circuit shown in the figure is

- (A) 18Ω
- (B) 12Ω
- (C) 6Ω
- (D) 4Ω



5. Which of the following formulae doesn't represents Ohm's law

- (A) $V = \frac{I}{R}$ (B) $R = \frac{V}{I}$ (C) $I = \frac{V}{R}$ (D) $V = IR$

6. Observe the following table and find the correct arrangement

a] Electric current	i] Volt
b] Resistance	ii] Coulomb
c] Potential difference	iii] Ampere
d] Electric charge	iv] Ohm

A] a – ii, b – i, c – iii, d -iv

B] a – iv, b – i, c – iii, d -ii

C] a – iii, b – iv, c – i, d -ii

D] a – iii, b – i, c – iv, d -ii

7. The rate at which electric energy is consumed in an electric circuit is called as

(A) electric power (B) resistance (C) electric potential (D) electric current

8. Which of the following is not a property of magnetic lines?

A)Magnetic field lines are dense near poles

B) Magnetic field lines are closed loops

C) Magnetic field lines intersect each other

D) Magnetic field lines emerge from north pole and merge at the south pole

9. What will happen if a soft iron bar is placed inside the solenoid ?

A) The bar will be electrocuted resulting in short circuit.

B) The bar will be magnetized as long as there is current in the circuit.

C) The bar will be magnetized permanently .

D) The bar will not be affected by any means.

10. 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) doesn't requires conducting wires.

11. The most important safety method used for protecting home appliances from short circuiting or overloading is by

(A) use of earthing wire

(B) use of fuse

(C) connecting all appliances in series

(D) use of electric meter.

12. Which of the following is eco friendly ?

(A) Thermal power plant

(B) Hydropower plant

(C) Biogas plant

(D) Nuclear power station.

13. “We cannot establish nuclear power reactors everywhere though large amount of electricity is produced by nuclear energy.” Reason which doesn’t support this statement among the following is

- (A) High efficiency of nuclear energy
- (B) Limited availability of nuclear fuel
- (C) Risk of nuclear waste leakage.
- (D) High cost of setting up of nuclear plant

14. Solar energy is considered as future energy source. This is mainly because of solar energy is

- A) Having less efficiency
- B) Causes less pollution
- C) Zero polluting energy source
- D) Renewable source of energy.

PART: B. – CHEMISTRY

13×1=13

15. The element A, B, C, D & E have atomic number 9, 11, 17, 12, 13 respectively, which pair of element's belongs to the same group

- A) A & B B) B & D C) A & C D) D & E

16. Which of the following is(are) true when HCl gas is passed through the water?

- (i) it does not ionise in the solution as it is a covalent compound
- (ii) it ionises in the solution
- (iii) it gives both hydrogen and hydroxyl ion in the solution
- (iv) it forms hydronium ion in the solution due to the combination of hydrogen ion with water molecule.

- A) (i) only B) (iii) only C) (ii) and (iv) D) (iii) and (iv)

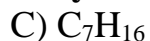
17. Name the functional group present in the C_2H_5CHO compound

- A) aldehyde B) alcohol C) ketone D) carboxylic acid

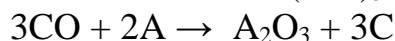
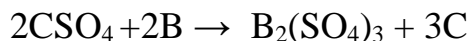
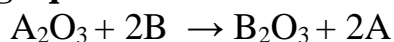
18. Which statement is not true among the following?

- A) Aluminium oxide is called an amphoteric oxide
- B) an iron strip dipped in a blue copper sulphate solution turns the blue solution pale green
- C) Hydrogen gas is not evolved when most metals react with nitric acid
- D) Platinum does not occur in free state in nature

19. Which of the following is an unsaturated hydrocarbon



20. A, B and C are three element which undergo chemical reaction according to the following equation



arrangement in increasing order of reactivity of these elements is



21. Which of the following will be produced when zinc metal is made to react with dilute hydrochloric acid ?



22. The diagram given below shows



A) formation of sodium chloride.

B) formation of sodium molecule.

C) formation of only chloride ion.

D) formation of only sodium ions.

23. In modern periodic table across the second period atomic number increases and atomic size

A) increases

B) remains same

C) increases then decreases

D) decreases

24. A teacher give two test tube one containing water and the other containing sodium hydroxide solution. Then he asked them to identify the test tube containing sodium hydroxide solution. Which one of the following can be used for correctly identifying the test tube containing the solution of sodium hydroxide?

A) blue litmus

B) red litmus

C) sodium carbonate solution

D) dilute HCl

25. According to Mendeleev's periodic law, the elements were arranged according to the:

A) increasing atomic number

B) decreasing atomic number

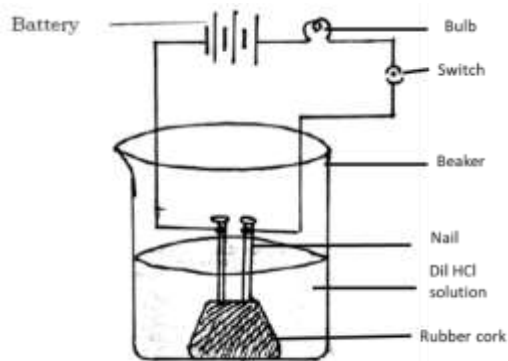
C) increasing atomic mass

D) decreasing atomic mass

26. Which one of the solution of following compounds will not conduct electricity ?



27. The apparatus in the figure was setup to demonstrate electrical conductivity. Which of the following statement is correct



- (i) bulb will not glow because electrolyte is not acid
 - (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 as it depends upon the type of electrolytic solution
- A) (i) & (iii) B) (ii) & (iv) C) (ii) only D) (iv) only

PART C – BIOLOGY

13×1=13

28. Excessive exposure to sun's UV rays causes-

- i) Ulcer ii) Cataract iii) skin burn and skin cancer iv) lung cancer
- A) ii & iii B) ii, iii & iv C) i & iv D) i & iii

29. Radiation responsible for the conversion of atmospheric oxygen to ozone-

- A) Gama radiation B) Infrared rays
- C) Ultra violet radiation D) Micro waves

30. Identify the correct pair of biodegradable wastes only-

- i) wood, paper, PVC
- ii) paper, seeds, detergents
- iii) animal excreta, paper, wood
- iv) leaves, paper, wood

- A) i, ii & iii B) i & iii C) ii, iii & iv D) iii & iv

31. Which among the following factors help in confirming the contamination of river water?

- i) measurement of pH of river water
- ii) Presence of chlorine in river water
- iii) Existence of diverse life forms
- iv) Presence of coliform bacteria

- A) i & iv B) i, ii & iii C) ii & iii D) ii, iii & iv

32. Correct path of urine in human body-

- A) Kidney → urinary bladder → urethra → ureter
B) Kidney → ureter → urinary bladder → urethra
C) ureter → Kidney → urinary bladder → urethra
D) Kidney → ureter → urethra → urinary bladder

33. The gland which nourishes the sperms-

- A) Prostrate gland B) Adrenal gland C) Testes D) Pancreas

34. The part which nourishes the foetus and remove the nitrogenous wastes -

- A) Fallopian tube B) Placenta C) Ovary D) cervix

35. The hormonal injection which is always present in the doctors' kit to treat in the emergency -

- A) Cytokinin B) Thyroxin C) Adrenaline D) Insulin

36. Development of pollen tube towards ovule due to the stimulation of a sweet liquid is called -

- A) Hydrotropism B) Chemotropism C) Phototropism D) Thigmotropism

37. The correct pair which shows the transport of soluble products of photosynthesis and the tissue involved in the process -

- A) Translocation and xylem B) Transpiration and stomata
C) Transpiration and phloem D) Translocation and phloem

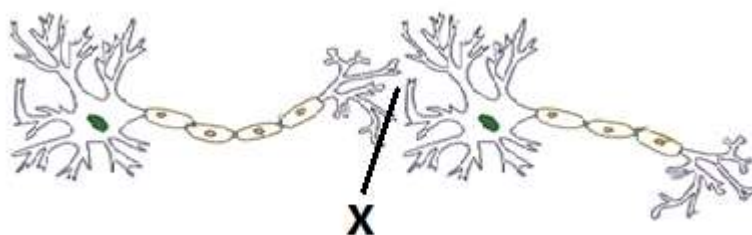
38. Correct pair of analogous organs -

- A) Tail of Cow and forelimb of dog
B) Forelimb of bird and forelimb of whale
C) Wing of a bird and wing of a bat
D) Wing of bird and hand of man

39. The phenotypic ratio of dihybrid cross

- A) 3:1 B) 9:3:3:1 C) 1:2:1 D) 1:1

40. The 'X' in the following figure-



- A) Dendrite B) cell body C) neuron D) synapse