ಕರ್ನಾಟಕ ಪ್ರೌಢ ಶಿಕ್ಷಣ ಪರೀಕ್ಷಾ ಮಂಡಳಿ, 6ನೇ ಅಡ್ಡ ರಸ್ತೆ, ಮಲ್ಲೇಶ್ವರಂ,
ಬೆಂಗಳೂರು – 560 003

**KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD,
6th CROSS, MALLESWARAM, BANGALORE – 560 003**

ರಾಜ್ಯ ಮಟ್ಟದ ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಪೂರ್ವಸಿದ್ಧತಾ ಪರೀಕ್ಷೆ, ಫೆಬ್ರವರಿ 2020

**STATE LEVEL SSLC PREPARATORY EXAMINATION,
FEBRUARY 2020**

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**   Code No. : **83-E**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನಶಾಸ್ತ್ರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ / Physics, Chemistry & Biology)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

ದಿನಾಂಕ : 24. 02. 2020]   [Date : 24. 02. 2020

ಸಮಯ : ಬೆಳಿಗ್ಗೆ 9-30 ರಿಂದ ಮಧ್ಯಾಹ್ನ 12-45 ರವರೆಗೆ]   [Time : 9-30 A.M. to 12-45 P.M.

ಗರಿಷ್ಠ ಅಂಕಗಳು : 80]   [Max. Marks : 80

I.   *Four* alternatives are given for each of the following questions / incomplete
      statements. Choose the correct alternative and write the complete answer
      along with its letter of alphabet.   8 × 1 = 8

1.   Reaction of calcium oxide with water is an example for

      (A) decomposition reaction   (B) combination reaction

      (C) displacement reaction   (D) double displacement reaction.

2.   If the roots of a plant are growing towards nitrate concentrated region of the soil, it is

(A)   phototropism

(B)   hydrotropism

(C)   thigmotropism

(D)   chemotropism.

3.   The focal length of a spherical lens is

(A)   the distance between optical centre and principal focus of the lens

(B)   the distance between centre of curvature and optical centre of the lens

(C)   the diameter of the outline of spherical lens

(D)   the radius of the outline of spherical lens.

4.   Among the elements $_2\text{He}^4$, $_7\text{N}^{14}$, $_{12}\text{Mg}^{24}$ and $_4\text{Be}^8$, the elements which belong to the same period in the modern periodic table are

(A) $_2\text{He}^4$ and $_4\text{Be}^8$

(B) $_7\text{N}^{14}$ and $_4\text{Be}^8$

(C) $_{12}\text{Mg}^{24}$ and $_2\text{He}^4$

(D) $_4\text{Be}^8$ and $_{12}\text{Mg}^{24}$.

5.   Refractive index of four medium A, B, C and D are 1·31, 1·65, 1·44 and 1·50 respectively. The velocity of light is maximum in

(A)   medium B

(B)   medium D

(C)   medium C

(D)   medium A.

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6.   Identify the right pair among the following :

(A)   Wing of a bird and forelimb of a horse — Homologous organs

(B)   Wing of a bat and forelimb of a squirrel — Analogous organs

(C)   Wing of a bird and wing of a butterfly — Homologous organs

(D)   Fin of a fish and wing of a bird — Analogous organs.

7.   The functional group present in ethanal is

(A)   — CO   (B)   — OH

(C)   — CHO   (D)   — COOH.

8.   Diagrams P and Q given below represent the gametes of human beings :
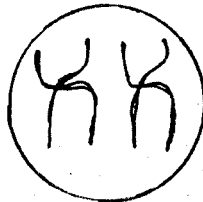
P   Q

Among these, the sex of a child is determined by

(A)   paired chromosomes of Q gamete

(B)   large chromosome of P gamete

(C)   any one of the chromosomes of Q gamete

(D)   paired chromosomes of P gamete.

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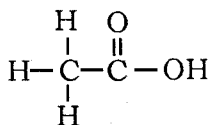
II. **Answer the following questions :** 8 × 1 = 8

9. Plane mirror is not used as rear view mirror for vehicles. Why ?

10. Name the plant hormones found in ripening fruit and wilting leaf.

11. Balance the following chemical equations :

   i) $HgS + O_2 \rightarrow HgO + SO_2$

   ii) $HgO \rightarrow Hg + O_2$.

12. What is dispersion of light ?

13. State modern periodic law.

14. Observe the given diagram :

Crushed potato + Saliva — Test tube A

Crushed potato — Test tube B
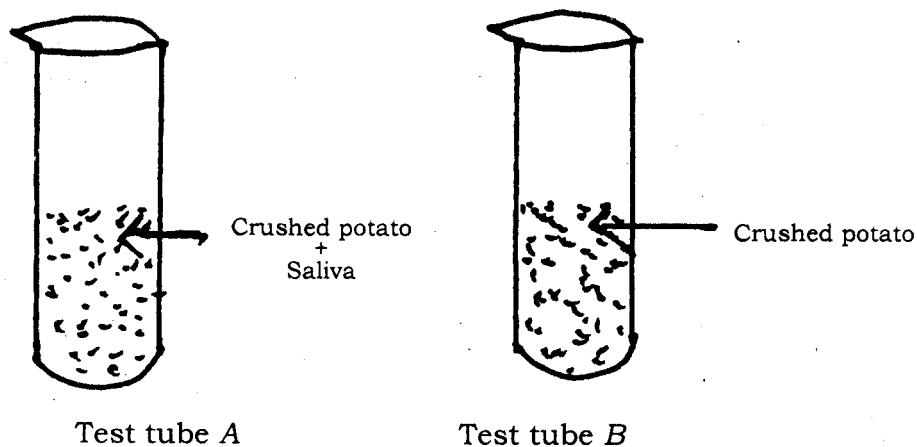
Few drops of dilute iodine solution is added to both the test tubes. Blue colour appears in the test tube B. What change occurs in test tube A ? Why ?

PPT-034

15. Observe the structure of the given carbon compound :

$$H-\overset{\displaystyle \overset{H}{|}}{\underset{\displaystyle \underset{H}{|}}{C}}-\overset{\displaystyle \overset{O}{\|}}{C}-OH$$

Decide whether this carbon compound is saturated or unsaturated. Give reason for your answer.

16. Name the type of the lens if its power is $-2 \cdot 0D$. Find the focal length of this lens.

III. **Answer the following questions :** $8 \times 2 = 16$
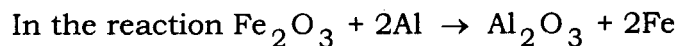
17. Draw the diagram showing germination of pollen on stigma. Label the following parts :

    i)   Part where fertilization occurs

    ii) Stigma.

18. The focal length of a convex lens is 50 cm. If an object is kept at a distance of 75 cm from the lens, then find the image distance and magnification produced by the lens.

19. What is oxidation reaction ?

    In the reaction $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$

    identify the reactant

    i)   that is oxidised

    ii) that is reduced

    iii) that is reducing agent.

<div align="center">OR</div>

What is decomposition reaction ? Name the products obtained when Ferrous sulphate crystals are heated.

<div align="center">PPT-034</div>   [Turn over

20. "Action of gastric juice and bile juice are complementary to each other for efficient digestion in humans." Justify.

OR

Organism	Form of stored food
A	Glycogen
B	Starch

Forms of food stored in the body of two organisms A and B are given in the above table. Classify them as autotrophs and heterotrophs. Give reason.

21. Electronic configuration of four elements are given in the table. Arrange these elements in the increasing order of their electronegativity. Give reason.

Elements	Electronic configuration
Na	2, 8, 1
S	2, 8, 6
Al	2, 8, 3
K	2, 8, 8, 1

22. Draw the ray diagram showing the position of the image formed by a concave mirror when an object is placed between centre of curvature and principal focus.

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23. Which method do you choose to manage sustainity in the environment in the following situations of daily life ?

    i)   Water during brushing teeth

    ii)   Empty glass bottle

    iii) Plastic bag given by shopkeeper

    iv)   Broken plastic bucket.

24. Draw the diagram of a simple electric generator. Label the following parts :

    i)   Rings

    ii)   Brushes.

IV. **Answer the following questions :**   9 × 3 = 27

25. "Crop field, forest, aquarium, lake." — Classify these into natural and artificial ecosystems. Give four reasons to consider garden as an ecosystem.

                                        OR

What are the challenges that non-bio-degradable wastes are posing in creating a clean environment ? How does the changed lifestyle has increased this problem ?

PPT-034   [Turn over

26. Draw the diagram of the arrangement of apparatus showing the action of steam on a metal. Label the following parts :

   i)　Delivery tube

   ii)　The part where hydrogen gas is collected.

27. Observe the following figure :
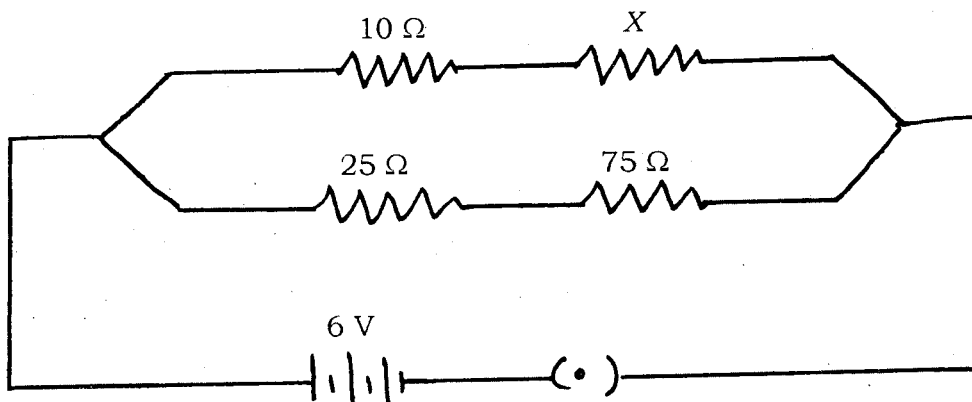
If the total resistance of the given circuit is 20 Ω , then calculate the resistance of a resistor X and current flowing through the circuit.

OR

The resistance of a conducting wire X of length 1 m is 5 Ω. Calculate the resistance of the wire made by the same material whose length is 4 times and area of cross-section is 5 times that of wire X. (At same temperature).

28. Mention the function of ovary, oviduct and uterus in the female reproductive system. How essential materials are supplied for the development of foetus ?

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29. The atomic numbers of the elements B and M are 12 and 17 respectively. Determine the molecular formula of the compound formed when these two elements react with each other. Explain the type of bond formed between these two elements with the help of electron dot structure.

30. What is short sightedness ? Mention the reasons for this defect. Name the type of lens used to correct this defect. How does this lens correct the eye defect ?

31. a) How is the function of thyroid gland helpful for balanced body growth in humans ?

    b) Explain the function of pancreas as an endocrine gland.

    OR

    How does the action due to nervous tissue in animals is different from response to the stimulus in plants ?

32. Explain the method of producing biogas in a biogas plant.

    OR

    "Now a days the use of solar cells is being encouraged." Justify this statement with suitable reasons.

33. Draw the diagram showing the cross-section of human heart. Label the following parts :

    i) Wall that separates oxygenated and deoxygenated blood.

    ii) Pulmonary artery.

PPT-034

[Turn over

V. **Answer the following questions :** $4 \times 4 = 16$

34. a) State Joule's law of heating. Write the mathematical form of this law.

    b) 200 J of heat is produced in one second from a resistor of resistance 8 Ω. Find the potential difference across the resistor and its power.

35. $NaCl + H_2O + CO_2 + NH_3 \rightarrow NH_4Cl + X$

    Name the compound X in this chemical equation. Compound X is a major component of antacids. Why ? Explain the preparation of washing soda using compound X with the balanced chemical equation.

    OR

    What are the gases liberated when dilute hydrochloric acid reacts with

    i) zinc

    ii) zinc carbonate.

    Suggest the experiments to identify these gases.

    Dry hydrogen chloride gas does not exhibit acidic property. Why ?

36. a) What are the reasons for overloading in an electric circuit ? Earthing is necessary for the appliances with metallic body. Why ?

    b) Explain the method of preparing electromagnet. How do you test the poles of an electromagnet with the help of magnetic compass ?

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37. a) Mention the tools that have been used for tracing evolutionary relationship of humans.

    b) How do genes control the characteristics of tallness of a plant ?

VI. **Answer the following questions :**

$1 \times 5 = 5$

38. Explain the combustion and substitution reactions of carbon compounds by taking methane as an example.

Write the chemical equations for the above reactions. Can methane be subjected to addition reaction ? Give reason.

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