ಕರ್ನಾಟಕ ಶಾಲಾ ಪರೀಕ್ಷೆ ಮತ್ತು ಮೌಲ್ಯನಿರ್ಣಯ ಮಂಡಲಿ

ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು – 560 003

KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD
Malleshwaram, Bengaluru – 560 003

2024-25ರ ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಮಾದರಿ ಪ್ರಶ್ನೆಪತ್ರಿಕೆ-3
S.S.L.C. MODEL QUESTION PAPER-3 – 2024-25

ವಿಷಯ : ವಿಜ್ಞಾನ
Subject : SCIENCE

(ಭೌತ ವಿಜ್ಞಾನ, ರಸಾಯನ ವಿಜ್ಞಾನ ಮತ್ತು ಜೀವ ವಿಜ್ಞಾನ / Physics, Chemistry & Biology)

(ಆಂಗ್ಲ ಮಾಧ್ಯಮ / English Medium)

ವಿಷಯ ಸಂಕೇತ : 83-E **Subject Code : 83-E**

ಸಮಯ : 3 ಗಂಟೆ 15 ನಿಮಿಷಗಳು] [Time : 3 Hours 15 Minutes

ಗರಿಷ್ಠ ಅಂಕಗಳು : **80**] [Max. Marks : **80**

General Instructions to the Candidate :

1. There are *three* parts in the question paper :

   Part A : Physics, Part B : Chemistry, Part C : Biology.

2. This question paper consists of 38 questions.

3. Follow the instructions given against the questions.

4. Figures in the right hand margin indicate maximum marks for the questions.

5. The maximum time to answer the paper is given at the top of the question paper.

   It includes 15 minutes for reading the question paper.

PART – A

(PHYSICS)

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. **2 × 1 = 2**

1. The S.I. unit of electric current is

(A) coulomb (B) volt

(C) ampere (D) watt

2. The change in focal length of an eye lens is controlled by

(A) Ciliary muscles (B) Pupil

(C) Retina (D) Iris

II. Answer the following questions : **2 × 1 = 2**

3. Write the symbols of the following components used in an electric circuit.

i) Electric cell

ii) Rheostat

4. What problems will occur when live and neutral wires are connected directly to the household electrical appliances from the electric poles ?

III. Answer the following questions : **3 × 2 = 6**

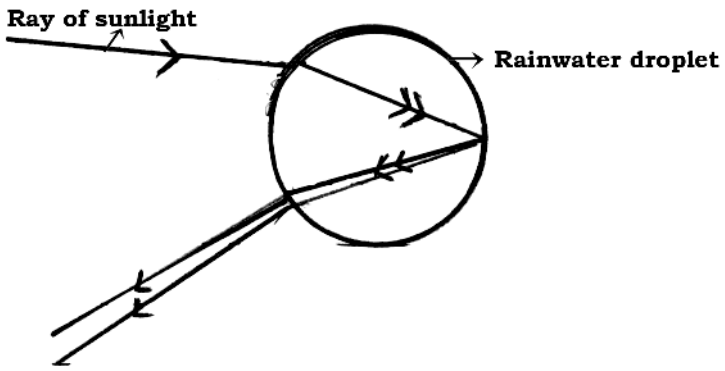
5. Connecting resistors in parallel in domestic circuits is better than connecting them in series. How ? Explain.

6. How do magnetic field lines appear when electric current passes through a circular loop of conducting wires ?

OR

Explain the function of earth wire in domestic circuits.

7. Observe the following figure. Answer the question given below :



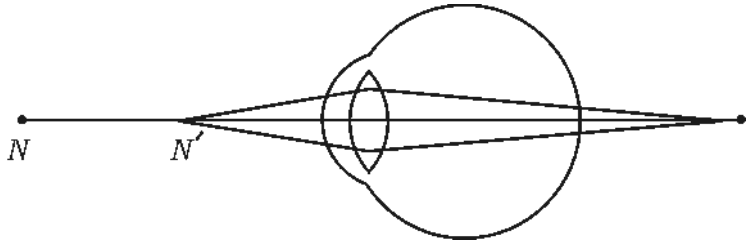
Whether this phenomenon can be observed on the moon surface ? Justify the answer.

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

8. Explain an activity to verify Fleming's left hand rule.

9. Draw the ray diagram for the image formation in a convex lens when the object is placed between optical centre (O) and principal focus (F_1). Mention the position and the nature of the image formed.

10. Observe the figure given below. Name the defect of the eye depicted in the figure. What causes this defect ? How can this defect be corrected ?



OR

Stars twinkle but planets do not twinkle. Why ? Explain.

V. Answer the following questions : **2 × 4 = 8**

11. A convex mirror that has a radius of curvature 4 m is used in a bus. If a car is located at the distance of 10 m from the mirror, then find the image distance. Mention the nature and the size of the image formed.

12. a) State Ohm's law.

b) Mention the factors on which the resistance of a conductor depend.

c) Resistivity of a material A is 10^{12} Ω m and the resistivity of a material B is $2{\cdot}63 \times 10^{-8}$ Ω m. Which of these two materials can be used as an insulator ?

PART – B

(CHEMISTRY)

VI. *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. **3 × 1 = 3**

13. A salt used to remove the permanent hardness of water is

(A) calcium sulphate hemihydrate

(B) calcium oxychloride

(C) sodium carbonate

(D) sodium hydrogen carbonate

14. As the pH value of a neutral solution decreases, then

(A) concentration of H^+ ions decreases

(B) concentration of H^+ ions increases

(C) solution becomes basic

(D) concentration of H^+ and OH^- ions equalises

15. Electronic configurations of the elements *A, B* and *C* respectively are 2, 8, 2 ; 2, 8 and 2, 8, 7. Among these the elements that can react each other to form an ionic compound are

(A) Elements *A* and *B*

(B) Elements *B* and *C*

(C) Elements *A* and *C*

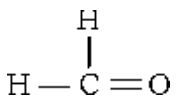
(D) Elements *A, B* and *C*

VII. Answer the following questions : **3 × 1 = 3**

16. What is galvanisation ?

17. Hydrogen gas is not evolved when a metal reacts with nitric acid. Why ?

18. Name the organic compounds that have below given structural formula :

i) 

ii) $CH_3 - CH_2 - Br$

VIII. Answer the following questions : **3 × 2 = 6**

19. What is the reason for tooth decay ? Explain. How can this be prevented ?

20. On heating crystals of copper sulphate its blue colour disappears. Give the reason for this change. How can the blue colour of copper sulphate be restored ?

21. Write the electron dot structure of the following molecules :

i) Hydrogen

ii) Ethane.

IX. Answer the following questions : **3 × 3 = 9**

22. a) Balance the following chemical equations :

i) $NaOH + H_2SO_4 \longrightarrow Na_2SO_4 + H_2O$

ii) $K + O_2 \longrightarrow K_2O$

b) $ZnO + C \longrightarrow Zn + CO$

Identify the reactant that is oxidised and the reactant that is reduced in this reaction.

OR

Mention the meaning of following chemical reactions :

i) Thermal decomposition

ii) Displacement reaction

iii) Rancidity.

23. What is neutralistion reaction ? How can sodium chloride be obtained by neutralisation method ? Write the balanced chemical equation for this reaction.

24. Draw the diagram of the apparatus arranged to show the action of steam on metal and label the following parts :

    i) Delivery tube

    ii) Hydrogen gas

X. Answer the following question : **1 × 4 = 4**

25. a) Explain the cleansing action of soaps.

    b) What is esterification ? Mention the uses of esters.

OR

    a) List any two differences between saturated and unsaturated carbon compounds.

    b) What are structural isomers ? Write the structures of butane isomers.

PART – C

(BIOLOGY)

XI. *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. **3 × 1 = 3**

26. Rhizopus : Spore formation :: Spirogyra :

(A) Fragmentation (B) Regeneration

(C) Budding (D) Vegetative propagation

27. Osmotic pressure in plants is necessary for

(A) the transportation of materials to the tissues that have low pressure

(B) the transportation of water from root to shoot

(C) the evaporation of excess of water present in plant body

(D) the elimination of the difference in the concentration of ions between root and soil

28. The correct pathway of movement of male gamete in a flower is

(A) Ovary → Stigma → Pollen tube

(B) Stigma → Pollen tube → Ovary

(C) Anther → Pollen tube → Stigma

(D) Style → Pollen tube → Ovary

XII. Answer the following questions : **3 × 1 = 3**

29. Surgical method of contraception is better than oral method of contraception. Why ?

30. What is ozone ? What is the advantage of this layer to the organisms on the earth ?

31. Exact copies of the progenies of the parent organism cannot be produced in sexual reproduction. Justify.

XIII. Answer the following questions : **2 × 2 = 4**

32. What are biodegradable and non-biodegrable substances ? Give an example for each.

OR

How do energy and harmful materials travel in the trophic levels of a food chain ?

33. Draw a diagram to show the structure of nephron and label Bowman's cup.

XV. Answer the following questions : **3 × 3 = 9**

34. How are the complex molecules of food converted into the simplest forms in the small intestine of human digestive canal ?

OR

What is the role of arteries and capillaries in the circulation of blood in our body ? Mention the importance of double circulation.

35. Draw the diagram of the human brain. Label the following parts :

    i) Pons

    ii) Cerebellum.

36. Roles of the 'uterus' and 'placenta' are complementary to each other in the development of a child. How ? Explain.

OR

"Position of the testis in the human male reproductive system and the role of prostate gland are complementary to each other." How ? Explain.

XV. Answer the following question : **1 × 4 = 4**

37. Red flowering tall pea plant (*TtRr*) is hybridised with white flowering, dwarf pea plant (*ttrr*). Draw a checker board to show the result of plants obtained in F_2 generation. What is the phenotypic ratio of the plants produced in F_2 generation ?

XVI. Answer the following question : **1 × 5 = 5**

38. a) How do climbing plants (creepers) show directional movement ? Explain.

    b) Mention the function of thyroxine and adrenaline hormones in the human body.