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-2

S.S.L.C. MODEL QUESTION PAPER-2 – 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. **3 × 1 = 3**

1. One of the properties of concave lens is, it

   (A) is thinner at the edges and thicker at the middle

   (B) diverges the light rays

   (C) forms real and inverted image

   (D) converges light rays

2. The crystalline lens of the eye in old age people sometimes becomes milky and cloudy. This condition is called

   (A) Hypermetropia (B) Myopia

   (C) Presbyopia (D) Cataract

3. In Fleming's left hand rule the middle finger indicates the direction of the

   (A) current

   (B) induced current

   (C) movement of the conductor

   (D) magnetic field

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

4. If the focal length of a spherical mirror is 25 cm then find its radius of curvature.

5. Draw the symbol diagram of two electric cells connected in series in an electric circuit.

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

6. How does our eye accommodate to see the objects at different distances ?

OR

Stars appear to be twinkling. Why ?

7. What is a solenoid ? How can it be converted into an electromagnet ?

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

8. Draw the diagram to show the recombination of the spectrum of white light.

9. State Ohm's law. How are ammeter and voltmeter connected in an electrical circuit ? Why are these instruments have to be connected in an electric circuit ?

OR

State Joule's law of heating. How is fuse connected in the circuit ? How does fuse work in a circuit ?

10. How do you trace the magnetic field lines around a bar magnet using compass needle ? Magnetic field lines do not intersect each other. Why ?

OR

What are the causes for overload and short circuit in an electric circuit ? What is the function of earth wire in domestic circuits ?

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

11. a) A wire of given material having length *'l'* and area of cross- section *'A'*, has a resistance of 4 Ω. What would be the resistance of another wire of the same material having a length $\frac{l}{2}$ and the area of cross-section 2 *A*.

b) In an electric circuit, the resistors R_1 , R_2 and R_3 have the values 5 Ω, 10 Ω and 30 Ω respectively. When these resistors are connected to a battery of 12 V parallelly then calculate the total resistance of this circuit.

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

12. a) What is refraction of light ? The refractive index of diamond is 2·42. What is the meaning of this statement ?

b) What are the uses of concave mirror ? Write the mirror formula.

PART – B

(CHEMISTRY)

VII. *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. An alloy that is made up of copper and zinc is

(A) solder metal

(B) bronze

(C) brass

(D) stainless steel

14. The reactants that exchange ions by reacting each other and form a precipitate among the following are

(A) Aluminium oxide and hydrochloric acid

(B) Sodium hydroxide and sulphuric acid

(C) Aluminium oxide and hydrochloric acid

(D) Barium chloride and sodium sulphate

15. The gas liberated when sodium bicarbonate reacts with dilute hydrochloric acid is

(A) Carbon dioxide (B) Nitrogen

(C) Hydrogen (D) Nitrogen dioxide

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

16. Mention any two methods to prevent the corrosion of iron materials.

17. In a homologous series, if the first member of hydrocarbon group has the molecular formula of C_2H_4, then find the molecular formula of the fifth member.

18. Thermite process has wider industrial applications. Why ?

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

19. Balance the following chemical equations :

i) $FeSO_4 \xrightarrow{heat} Fe_2O_3 + SO_2 + SO_3$

ii) $CH_4 + O_2 \longrightarrow CO_2 + H_2O$

20. What are alkynes ? Write the molecular and structural formula of Benzene.

21. Write the properties of ionic compounds.

OR

Give reason :

a) Aluminium oxide is called amphoteric oxide.

b) Calcium floats on water.

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

22. Draw the diagram of the arrangement of apparatus used to show the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning and label zinc granule.

23. Among the materials sodium carbonate, calcium oxychloride, calcium carbonate, sodium bicarbonate, calcium sulphate hemihydrate,

i) which compound is used to make drinking water free from germs ?

ii) which compound is used in soda acid fire extinguisher ?

iii) which compound does a doctor use to give support to fractured bones in the right position ?

24. Write the differences between calcination and roasting. How is pure zinc metal will be obtained by these processes ?

XI. Answer the following questions : **1 × 4 = 4**

25. a) Explain substitution reaction in hydrocarbons with an example.

b) Explain the mechanism of cleaning action of soaps.

OR

a) Carbon atoms do not form C^{4-} anion and C^{4+} cation. Why ?

b) Write the electron dot structures of nitrogen molecule and ethene molecule.

PART – C

(BIOLOGY)

XII. *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**

26. Small intestine : Villi :: Lungs : ..... .

(A) Bronchi (B) Alveoli

(C) Nephrons (D) Diaphragm

27. A trait that cannot be inherited among the following is

(A) Shape of the eye (B) Colour of the hair

(C) Type of the blood group (D) Playing skills

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

28. What is transpiration ?

29. The folding up of leaves of sensitive plant (touch-me-not plant) on touching with a finger is not a trophism. Why ?

30. Mention any two advantages of vegetative propagation.

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

31. Draw the diagram showing the germination of pollen on stigma and label the part ovary.

32. Write the functions of medulla and cerebellum of the human brain.

33. Give reason :

i) Nephrons are called fundamental functional units of excretory system.

ii) Small intestine is called complete digestion centre.

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

34. A tall (*TT*) pea plant is crossed with a dwarf (*tt*) pea plant. Mention the types of plant obtained in F_1 generation and represent the result obtained in F_2 generation with the help of checker board and mention the ratio of varieties of plants.

OR

Round green colour seeds producing pea plant (*RRyy*) are crossed with wrinkled yellow colour seeds producing pea plant (*rrYY*). Show the result of F_2 generation with the help of a checker board and mention the ratio of varieties of plants.

35. Draw the diagram showing the schematic sectional view of the human heart. Label the following parts :

i) Aorta

ii) Pulmonary veins.

36. What are trophic levels ? Flow of energy in an ecosystem is always unidirectional. Why ? Explain.

OR

What is ozone ? What is the function of ozone layer ? What are the causes for the depletion of ozone layer ?

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

37. What is reflex arc ? Trace the sequence of events that occur in this structure, when a bright light is focused on our eyes.

38. a) Explain the structure and function of placenta.

b) What are the functions of prostate gland and testosterone hormone.