ಕರ್ನಾಟಕ ಶಾಲಾ ಪರೀಕ್ಷೆ ಮತ್ತು ಮೌಲ್ಯನಿರ್ಣಯ ಮಂಡಲಿ

ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು – 560 003

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

2026–27ರ ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಮಾದರಿ ಪ್ರಶ್ನೆಪತ್ರಿಕೆ – 4

S.S.L.C. MODEL QUESTION PAPER – 4 : 2026-27

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject: SCIENCE

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

(ಆಂಗ್ಲ ಮಾಧ್ಯಮ / **English Medium**)

ವಿಷಯ ಸಂಕೇತ : **83-E**

ಸಮಯ : 3 ಗಂಟೆ 15 ನಿಮಿಷಗಳು]

ಗರಿಷ್ಠ ಅಂಕಗಳು : 80]

Subject Code : 83-E

[Time: 3 Hours 15 Minutes

[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 device used to measure the rate of electric current in a circuit is

   (A) ammeter (B) voltmeter

   (C) rheostat (D) battery

2. If the power of the lens prescribed by the ophthalmologist for vision correction is +2D then, the focal length of that lens is

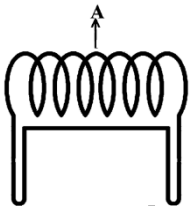
   (A) 2m (B) 0.2m

   (C) 0.50m (D) 5m

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

3. What effect will happen if the fuse is not installed in a domestic electric circuit?

4. Observe the picture given below. Mention the two measures that can be followed to produce magnetic field lines around the coil 'A'.



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

5. Write any two differences between near-sightedness (myopia) and far-sightedness (hypermetropia).

6. Draw the diagram indicating the magnetic field lines formed around the current carrying straight conducting wire.

7. 'In domestic electric circuits connecting electrical devices in parallel is a better practice '. Give four reasons for this practice.

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

8. Draw the ray diagram to show the image formation when an object is kept between 'F' and 'P' of a concave mirror. Write the nature and position of the image formed.

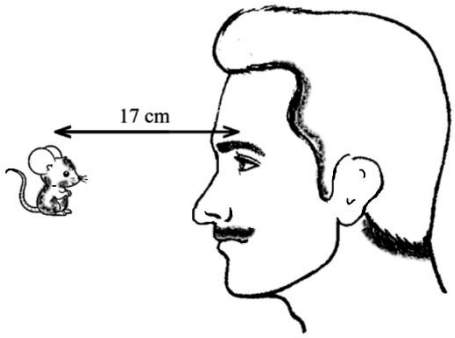
   [F = Principal focus and P = Pole of the mirror]

9. Explain an experiment to demonstrate that a current carrying conductor placed in a magnetic field experiences a force.

   OR

   Explain an activity to draw the magnetic field lines around a bar magnet using a compass needle.

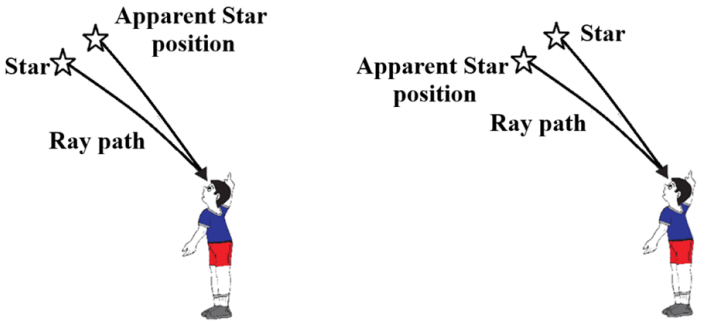
10. The below figure is showing the distance between the human eye having normal vision and a mouse. Overview the picture and answer to the question given.



Is the mouse clearly visible to the human eye here? Justify your answer with suitable reason. What is the function of the lens in the human eye?

OR

Observe the pictures given below.



Situation - 1 **Situation - 2**

i) Which situation is correctly indicating the apparent position of the star? Why?

ii) What is the reason for the change in the apparent position of the star?

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

11. a) Define 1 dioptre. Write the formula used to calculate the magnification of the image formed by a mirror.

b) State the laws of refraction of light.

12. An electric heater is connected to a 220V generator and draws a current of 10A. What is the power of this electric heater? If this electric heater is used for 8 hours a day, then calculate the total cost of using it for 30 days at Rs. 5.00 per 1 kWh.

OR

Resistance of a metal wire of length 2 m is 28 Ω at 20°C. If the diameter of the wire is 0.04mm, then find the resistivity of the metal at that temperature.

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. The range of pH values of different acids is

(A) 0- less than 7 (B) 2-12

(C) 7-14 (D) 12-14

14. Organic compounds obtained by the reaction between carboxylic acid and alcohol are

(A) aldehydes (B) ketones

(C) esters (D) haloalkanes

15. The list of Alloys that have different constituents is given in the table below. By observing it, an alloy that has a low melting point among these is

Components	Alloy
Fe, Ni, and Cr	p
Cu and Zn	q
Cu and Sn	r
Pb and Sn	s

(A) p (B) q

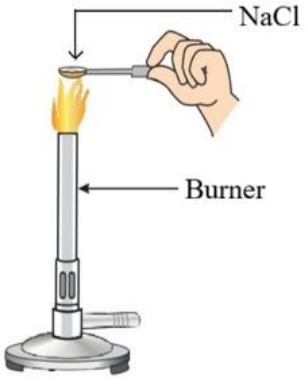
(C) r (D) s

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

16. What is the reason for the formation of reddish-brown coloured coating on iron objects?

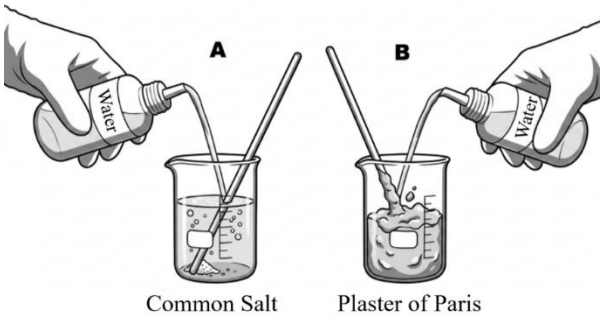
17. The molecular formulae of three carbon compounds that are in homologous series are C_2H_6, C_3H_8 and C_4H_{10}. Then write the general formula of this homologous series.

18. Analyse the activity carefully that is expressed in the figure below. From this activity, how can NaCl be considered as an ionic compound?



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

19. In the given below image, water is added to both of the beaker 'A' having common salt and the beaker 'B' having plaster of paris. The solution of which beaker turns into solid form? Justify your answer with a chemical equation.



20. The ratio of carbon and hydrogen atoms in a particular group of unsaturated hydrocarbons is 1 : 2. However, a molecule of CH_2 in the same proportion cannot be the first member of this group of hydrocarbons. What is the reason for this? Write the structural formula of the first member of this hydrocarbon group.

OR

Carbon compounds are found in extremely large number in nature. Why? Clarify.

21. Which physical properties of metals are used in the following situations?
    i) Gold is used in making jewellery.
    ii) Nickel is used in guitar strings.

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

22. Balance the following chemical equations
    i) $Na + O_2 \rightarrow Na_2O$
    ii) $Mg + HCl \rightarrow MgCl_2 + H_2$
    iii) $N_2 + H_2 \rightarrow NH_3$

OR

a) Write the types of chemical reactions given below.
    i) $ZnCO_3 \rightarrow ZnO + CO_2$
    ii) $H_2 + Cl_2 \rightarrow 2HCl$

b) Are reactions expressed in equations 'i)' and 'ii)' opposite to each other? Justify your answer with a suitable reason.

23. Read the information below and answer the questions given:

- The liquid waste emitted by the factories may contain high amounts of hydrochloric acid sometimes.
- It is dangerous to discharge this waste water to the water sources.

i) Which type of chemical process must be carried out before letting these wastes to the water sources? Represent this process by a general word equation.

ii) What is the role of bleaching powder in the treatment of impure water.

24. Draw the diagram to show the arrangement of the apparatus used in the electrolytic refining of copper. Label the following parts.

i) Anode mud ii) Acidified copper sulphate solution

X. Answer the following questions : 1 x 4 = 4

25. a) The conversion of ethanol to ethanoic acid is an oxidation reaction. Why?

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

OR

a) Explain the mechanism of cleaning action of soaps.

b) Which are the salts responsible for hardness of water? Detergents are effective even in hard water. Why?

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. An enzyme that is secreted by the pancreas to digest protein is

(A) Amylase (B) Pepsin

(C) Trypsin (D) Lipase

27. The process that occurs in the production of new individuals of planaria is

(A) Binary fission (B) Regeneration

(C) Budding (D) Fragmentation

28. Observe the reproductive processes depicted through below P and Q figures. A correct statement related to these processes among the following is



(A) The offsprings produced in the process P are completely as similar to the parent plants.

(B) The offsprings produced in the process Q have variations.

(C) Offsprings produced in both of the processes will have 50% similarities with parent organisms.

(D) The organisms produced in the process P show more variations.

XII. Answer the following questions : 3 x 1 = 3

29. What is geotropism?

30. Using contraceptive pills and the use of condom on the penis both are contraceptive methods. Which among these methods is helpful in controlling sexually transmitting diseases?

31. The amount of haemoglobin content in the blood of two persons 'A' and 'B' is found to be 9gm/dl and 13gm/dl. Which statement among the following is correct regarding the oxygen supply in their body?

i) Oxygen supply is more in the person 'B' than in 'A' person.

ii) Oxygen supply is more in the person 'A' than in 'B' person

XIII. Answer the following questions : 2 x 2 = 4

32. How do we detect the smell of an ignited incense stick (Agarabatti)?

OR

Name the glands that secrete the following hormones and mention the functions of these hormones.

i) Insulin

ii) Thyroxine

33. On a very hot summer day, a person drinks lot of water but notices, he produces a small amount of concentrated urine. How is this process related to the reabsorption process that takes place in the nephron tube?

XIV. Answer the following questions : 3 x 3 = 9

34. What are producers, consumers and decomposers in the environment? Give an example for each.

OR

a) Define the following.
   i) Food chain
   ii) Biological magnification

b) Mention the function of ozone.

35. a) Red flowers producing pea plant (RR), is crossed with white flowers producing pea plant(rr). Show the result obtained in the F_2 generation with the help of a checker board.

b) How is the sex of the male child in humans determined?

36. A person who met with an accident experience the heat of a cup that has hot tea by a touch but fails to withdraw the hand immediately by itself.
   i) Which neuron of the reflex arc is probably damaged? Justify your answer.
   ii) Which part of the human nervous system brings control during the situation mentioned above?

XV. Answer the following questions : 1 x 4 = 4

37. Draw the diagram showing the sectional view of the human heart. Label the following parts:
   i) Right atrium
   ii) Pulmonary veins

XVI. Answer the following questions : 1 x 5 = 5

38. a) Growth of thread like structures along with the gradual spoilage of tomato is observed on a cut tomato after a few days. Mention the reasons for this change.

b) The testicles are located outside the abdomen in the scrotum in men. Why?

c) How does the number of chromosomes rearrange in sexual reproduction?

OR

a) How does a fertilized egg develop into an embryo in the uterus of female? How does this embryo get nourishment in the mother's womb? Explain.

b) How does a seed grow into a future plant?