(3) MODEL EXAMINATION (2018-19)
SCIENCE (086)

CLASS: X

MARKS: 80
TIME: 3 Hrs

General Instructions:

i. The question paper comprises of five sections – A, B, C, D and E. You are to attempt all the sections.
ii. All questions are compulsory.
iii. Internal choice is given in sections B, C, D and E.
iv. Question numbers 1 and 2 in Section-A are one mark questions. They are to be answered in one word or in one sentence.
v. Question numbers 3 to 5 in Section-B are two marks questions. These are to be answered in about 30 words each.
vi. Question numbers 6 to 15 in Section-C are three marks questions. These are to be answered in about 50 words each.
vii. Question numbers 16 to 21 in Section-D are 5 marks questions. These are to be answered in about 70 words each.
viii. Question numbers 22 to 27 in Section-E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

Section-A

1) What is the function of bile juice? From where is it secreted? 1

2) Name four stakeholders of forests and wild life. 1

Section-B

3) Refractive index of media A, B, C, and D are 1.33, 1.44, 1.52 and 1.65 respectively. In which of the four media is the speed of light (i) maximum and (ii) minimum? Find the refractive index of medium C with respect to medium B. 2

OR

Between which two points of a concave mirror should an object be placed to obtain a magnification of -3 and why? Draw a suitable ray diagram showing position of object and image.

4) A white powder is added while baking breads and cakes to make them soft and fluffy. What is the name of the powder? What are the main ingredients in it? What are the functions of each ingredient? 2

5) Differentiate between unisexual and bisexual flowers with an example for each. What do you mean by pollination? 2

Section-C

6) Balance and name the type of chemical reaction represented by the following equation: 3
   a) $CaO + H_2O \rightarrow Ca(OH)_2$
   b) $BaCl_2 + Al_2(SO_4)_3 \rightarrow AlCl_3 + BaSO_4$
   c) $FeSO_4 \xrightarrow{Heat} Fe_2O_3 + SO_2 + SO_3$

7) Give reason. 3
   a) Objects are not clearly seen for some time when a person enters from bright light to a room with dim light.
   b) The sun appears reddish during sunrise and sunset.
   c) Objects seem to flicker when seen through a turbulent stream of hot air rising above a fire.

8) Name the 4 chambers of human heart. 'The separation of right side and left side of the heart is useful'. Justify the statement. 3

9) Write the number of periods and groups in the modern periodic table. How does the metallic character of elements vary on moving: 3
   i) from left to right in a period , and ii) down a group?
   Give reason to justify your answer.

10) Why do green plants bend towards a unidirectional source of light? 3
   What do you mean by chemotropism? Give an example.

11) a) Explain the function of fuse in electric circuits. 3
   b) A fuse is rated 8A. Can it be used within an electrical appliance of rating 4KW, 200V? Explain.

   OR

   a) Draw the magnetic field pattern around a current carrying circular coil.
   b) How does the strength of magnetic field at the centre of a circular coil of a wire depend on the radius of the coil?
   c) If a circular coil has 'n' turns, the field produced in 'n' times as large as that produced by a single turn. Give reason.

12) a) Mention the pH range within which our body works. Explain how antacid give relief from acidity. Write the name of one such antacid. 3
   b) Fresh milk has pH of 6. How does the pH will change as it turns to curd? Explain your answer.
   c) A milkman adds a very small amount of baking soda to fresh milk. Why does this milk take a longer time to set as curd?

   OR

   a) Explain why is hydrochloric acid a strong acid and acetic acid a weak acid. How can it be verified?
   b) Explain why an aqueous solution of an acid conducts electricity?

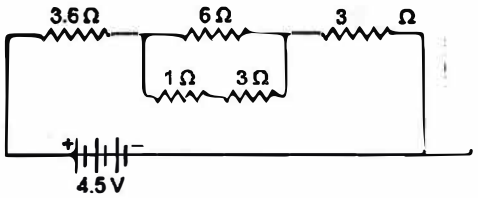
13) a) What are the major constituents of biogas? 3
   b) Biogas is an excellent fuel. List three reasons to justify this statement.
   c) Name two elements in the slurry left behind which makes it a good manure.

14) a) How is the Ozone layer formed? Why is its depletion a cause of concern? How is this layer being depleted? 3

OR

b) What is trophic level? Give an example of grassland food chain and state the different trophic levels in it. 'The flow of energy in an ecosystem is unidirectional'. Justify.

15) Calculate the following in the circuit diagram given below. 3



a) Total current in the circuit.
b) Potential difference across 3.6Ω resistor.
c) Current across 6Ω resistor.

Section-D

16) a) Explain with a cross that father is responsible for the sex of a child. How many chromosomes do humans have? What is the advantage of sexual reproduction? 5

OR

b) What are fossils? How are they formed? What is their significance? Explain whether wings of birds and bat are Homologous or Analogous organs. List 4 factors that can lead to the formation of new species.

17) a) Derive an expression for Joules' law of heating.
b) Write any two practical applications of heating effect of current. 5
c) 100J of heat are produced each second in a 4Ω resistance. Find potential difference across the resistor.

OR

a) What are the factors on which resistance of a conductor depends?
b) A wire has resistance of 16Ω. It is melted and drawn into a wire of half its length. Calculate the resistance of the new wire. What is the percentage of change in its resistance?

18) a) What is reactivity series? How does the reactivity series of metals help in predicting the relative activities of various metals? 5
b) Suggest different chemical processes used for obtaining a metal from its oxides for metals in the middle of the reactivity series and metals towards the top of the reactivity series. Support your answer with one example each.

19) a) Distinguish between virtual and real image of an object. What type of image is formed by (i) Plane mirror (ii) Concave lens. 5
b) An object of size 7cm is placed at 27cm in front of a convex lens. If a sharp image of the object is formed on a screen placed at 54cm from the lens, what is the focal length of the ~~mirror~~ lens ? Also find the nature and size of the image.

20) Why are certain compounds called hydrocarbons? Write the general formula for homologous series of alkanes, alkenes and alkynes and also draw the structure of the first member of each series. Write the name of the reaction that converts alkenes into alkanes and also write chemical equation to show the necessary condition for the reaction to occur. 5

OR

What are esters? How are esters prepared? Write the chemical equation for the reaction involved. What happens when an ester reacts with sodium hydroxide? Write the chemical equation for the reaction and also state the name and use of this reaction.

21) Differentiate between male and female reproductive system in humans on the basis of: 5

a) Location of reproductive organs
b) Sex glands which are also endocrine glands
c) Hormones produced by sex glands

Section-E

22) The values of current I flowing in a given resistor for the corresponding values of potential difference V across the resistor are given below. 2

I(ampere)	1.0	2.0	3.0	4.0	5.0
V(volt)	1.5	3.0	4.5	6.0	7.5

Plot a graph between V and I and calculate the resistance of the resistor.

23) A solution 'X' gives orange colour when a drop of universal indicator is added to it. On the other hand another solution 'Y' gives bluish-green colour when a drop of universal indicator added to it. What are the types of solution 'X' and 'Y'? And what type of pH would they have? 2

OR

A student obtains a white precipitate on mixing two different salt solutions such as barium chloride and sodium sulphate in a beaker. Identify and name the precipitate formed and the type of the reaction also write the chemical equation.

24) How does reproduction take place in Amoeba? Draw the steps in proper sequence.

25) Draw the path of a light ray passing from air to a glass slab. Label the angle of incidence, angle of refraction and the angle of emergence. 2

26) How are stomata in the leaves protected? Draw the structure and label the parts. 2

OR

How does Hydra reproduce? Draw the steps and explain them

27) In an experiment to study the properties of acetic acid, answer the following questions: 2

a) Name the substance which on addition to acetic acid produces carbon dioxide gas.
b) How carbon dioxide gas is tested in the laboratory?

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