Model Question Paper

Science and Technology

Time : 3 Hours **Std. X** **Marks : 80**

Note : 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use the same answer sheet for section A and section B.
4) Draw well labelled diagrams wherever necessary.
5) Students should write the answers in sequence.

Section - A

Q.1. A. 1. Fill in the blanks and rewrite the sentences in answersheet. **(3)**

1) Number of elements in the third period is _____.
2) pH scale ranges from _____ to _____ .
3) If a live wire and a neutral wire comes in direct contact or touch each other _____ takes place.

2. Find the odd one out. **(2)**

1) Presbyopia, retina, short sightedness, long sightedness.
2) Voltmeter, ammeter, galvanometer, thermometer.

B. Multiple choice questions. **(5)**

1) The colour of universal indicator paper in neutral solution is _____ .

   a) red b) blue c) green d) greenish yellow.

2) A ray of light strikes the glass slab at an angle of 50°. What is the angle of incidence ?

   a) 50° b) 40° c) 140° d) 80°

3) In a voltmeter there are 20 divisions between the 0 mark and 0.5 V. The least count of voltmeter is _____ volts.

   a) 0.020 b) 0.025 c) 0.050 d) 0.250

4) In series combination which remains constant !

   a) current b) voltage c) both current and voltage d) both are variable

5) A solution of $Al_2(SO_4)_3$ in water is _____ .

   a) blue b) pink c) green d) colourless.

Q.2 Answer the following questions (any 5) **(10)**

1) The material used for fuse has low melting point. Why ?
2) Draw a ray diagram of a concave mirror when an object is placed at the centre of curvature.
3) How do biodegradable and non biodegradable waste cause land pollution ?
4) X, Y, Z are the elements of Dobereiner's triad. If the atomic mass of X is 7 and that of Z is 39. What should be the atomic mass of Y ?
5) The alloys like alnico or nipermag are used in Industry. Why ?
6) A wireman died while on job due to electric shock. What must have gone wrong ?

Q.3 Solve the following questions. (any five) **(15)**

1) An atom has electronic configuration (2, 8, 7). What is the atomic number of this element ? To which one of the following elements would it be chemically similar ? Why ?
   N(7), F(9), P(15), Ar(18)
2) Write the principle of AC generator. Draw the figure to show it's internal structure.
3) Solve and fill in the blanks.

Velocity in first medium (V_1)	Velocity in second medium (V_2)	Refractive index ${}_1n_2$	Refractive index ${}_2n_1$
3×10^8 m/s	1.2×10^8 m/s	-------	-------
--------	2.25×10^8 m/s	4/3	-------
2×10^8 m/s	-------	-------	1.5

4) Edible oil is not allowed to stand for a long time in an iron or tin container. Why ?
5) Differentiate between conductors and insulators.
6) How do metal carbonates react with acids ?

Q.4 Answer the following questions. **(5)**

Suggest measures in the following situations -------

1) To avoid noise pollution in classroom.
2) Bursting fire crackers in festivals and processions.
3) The use of fossil fuels in villages.
4) The level of air pollution is very high in your locality.
5) To minimise electricity consumption in your house.

OR

Read and answer the following : **(5)**

A table spoon full of copper powder in China dish was heated strongly which resulted into a black substance. A pinkish brown coating was found over the black substance when hydrogen gas was passed over it.

1) What is the name of black substance ? (1)
2) Name the pinkish brown substance. (1)
3) Name the type of chemical reaction in the first situation and then in the second situation. (2)
4) Name the type of reactions if both happened simultaneously. (1)

Section B

Q.5 A. Answer the following : **(5)**

1) Give two examples of each :
   a) Amphoteric metal
   b) Involuntary actions.
   c) Organic nutrients.
2) State whether the following statements are true or false.
   i) Enzyme lipase breaks down starch into a simple sugar maltose.
   ii) Afferent nerves carry impulses from the brain to the sensory organ.

B. Multiple choice questions. **(5)**

1) To observe stomata in dicot leaf we must prepare a slide by taking ---
   a) a crushed leaf

b) upper epidermis of leaf

c) a lower epidermis of leaf

d) a central part of leaf

2) Which of the following is not essential for phytosynthesis. -----

a) Oxygen b) carbondioxide

c) light d) chlorophyll

3) Fermentation is a type of ----

a) Aerobic respiration b) Unaerobic respiration

c) exothermic reaction d) None of these

4) Percentage of water absorbed is calculated dividing ------ by initial weight.

a) Final weight b) increased weight

c) decreased weight d) none of these.

5) Iron is -----

a) more reactive than Zn.

b) more rective than A1

c) less reactive than Cu

d) less reactive than Al.

Q.6 Answer the following (any 5) **(10)**

1) Why is sodium kept under kerosene ?

2) Distinguish between sexual and asexual reproduction.

3) Why peripatus is called connecting link ?

4) State work of WBCSD.

5) Arrange the following metals in the decreasing order of chemical reactivity : Cu, Mg, Fe, Ca, Zn.

6) Give the IUPAC name of CH_3 - CH_2 - CH_2 - OH.

Q.7 Answer the following questions. (Any 5) **(15)**

1) What is meant by consumerism. How does it affect sustainable development ?

2) Explain structure of a neuron with figure.

3) An element X on reacting with oxygen form an oxide X_2O. This oxide dissolve in H_2O turns red litmus blue. State whether element X is metal or non-metal. Explain with proper example.

4) Write a short note on - 'Reflex action'.

5) Explain Functional group.

6) State any three methods used by plants to get rid of excretory products.

Q.8 Describe the structure of human heart considering the following points.

i) Figure (2)

ii) Working (2)

iii) Special pecularity of blood circulation. (1)

OR

A scientist created a hen which was replica of a hen in his yard.

1) What is the name of the process ? (1)

2) Give scientific reason for the process. (1)

3) Which was the first mammal to be created in this way ? (1)

4) Give one advantage of this process. (1)

5) Suggest some other name for this process (1)