

## 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  $50^\circ$ . What is the angle of incidence ?  
a)  $50^\circ$     b)  $40^\circ$     c)  $140^\circ$     d)  $80^\circ$
- 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 ${}_2n_1$
$3 \times 10^8$ m/s	$1.2 \times 10^8$ m/s	-----	-----
-----	$2.25 \times 10^8$ m/s	4/3	-----
$2 \times 10^8$ 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 photosynthesis. -----
- a) Oxygen
  - b) carbon dioxide
  - c) light
  - d) chlorophyll
- 3) Fermentation is a type of ----
- a) Aerobic respiration
  - b) Anaerobic 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 reactive than Al
  - 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  $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH}$ .

**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 peculiarity 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)

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