

Total Questions : 50

Time : 1 hr.

PATTERN & MARKING SCHEME

Section	(1) Logical Reasoning	(2) Science	(3) Achievers Section
No. of Questions	10	35	5
Marks per Ques.	1	1	3

SYLLABUS

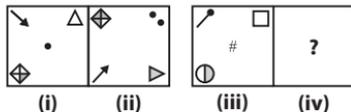
Section – 1 : Verbal and Non-Verbal Reasoning.

Section – 2 : Chemical Reactions and Equations, Acids, Bases and Salts, Metals and Non-metals, Carbon and Its Compounds, Life Processes, Control and Coordination, Reproduction in Organisms, Heredity, Light-Reflection and Refraction, The Human Eye and the Colourful World, Electricity, Magnetic Effects of Electric Current, Our Environment.

Section – 3 : Higher Order Thinking Questions - Syllabus as per Section – 2.

LOGICAL REASONING

1. There is a certain relationship between figures (i) and (ii). Establish the similar relationship between figures (iii) and (iv) by selecting a suitable figure from the options that would replace the (?) in Fig. (iv).



2. P and Q both are children of R. If R is the mother of P, P is the son of R but Q is not the daughter of R, then how are Q and P related?
 (A) Q is the cousin of P (B) Q is the niece of P
 (C) Q is the nephew of P (D) Q is the brother of P
3. The positions of how many alphabets will remain unchanged, if each of the alphabets in the word MIRAGE is arranged in alphabetical order from left to right?
 (A) None (B) One (C) Two (D) More than two

SCIENCE

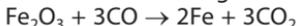
4. Consider the following reaction sequence :



R gives back P and sodium salt of Q on saponification. Select the correct statement about P, Q and R from the following.

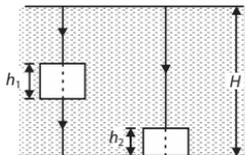
- (A) P is CH_4 and Q is used in making perfumes.
 (B) 5–8% solution of P in water is called vinegar.
 (C) Q is CH_3COOH and R is used in making perfumes and as flavouring agents.
 (D) R undergoes dehydration reaction in presence of conc. H_2SO_4 to give ethene.

5. Which of the following statements about the given reaction is correct?



- (A) Fe_2O_3 is getting oxidised to Fe. (B) Fe_2O_3 is acting as a reducing agent.
 (C) CO is acting as a reducing agent. (D) CO is getting reduced to CO_2 .
6. Which one of the given statements is correct?
 (A) Among the copper wires of length and cross-section area as (l, a) , $(2l, a/2)$ and $(l/2, 2a)$, wire with $(2l, a/2)$ values has minimum resistance.
 (B) If the length of wire is increased by 25% and its area of cross-section is decreased by 75%, then its resistivity will decrease by 80% of its initial value.
 (C) Resistivity of an alloy is generally higher than that of its constituent metals.
 (D) It is not possible to have two wires of same length, one of copper and the other one of iron having the same resistance at same temperature.

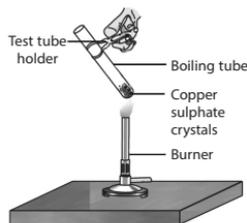
7. Two rays of light are incident normally on water. Both the rays pass through glass slabs of different heights, as shown in the given figure. Refractive indices of water and glass are $4/3$ and $3/2$ respectively. If c is the speed of light in vacuum, then the time difference between the rays of light to reach the bottom is



- (A) $\frac{H}{2c}$ (B) $\frac{8H}{9c}$ (C) $\frac{H-h_1-h_2}{3c}$ (D) $\frac{h_1-h_2}{6c}$
8. Select the option that correctly fills in the blanks.
 In generative fertilisation, a (i) fuses with a (ii). (i) and (ii) respectively are
 (A) Polar nucleus, Secondary nucleus (B) Male gamete, Polar nucleus
 (C) Male gamete, Female gamete (D) Female gamete, Secondary nucleus.

ACHIEVERS SECTION

9. Observe the following experimental set-up carefully and select the correct statement from the following.



- (A) The blue colour of copper sulphate crystals changes to white and water droplets appear on the upper cooler part inside the test tube.
 (B) The blue colour of copper sulphate crystals changes to pale-yellow and water droplets appear on the upper cooler part outside the test tube.
 (C) If we put 2-3 drops of water on the anhydrous salt (which is obtained after heating), white crystals of copper sulphate appears.
 (D) One molecule of hydrated copper sulphate contains seven molecules of water.
10. Correct the following statements by replacing the underlined terms (wherever necessary) and select the correct option.
 (i) Chlamydomonas reproduces by fragmentation.
 (ii) Grafting is performed between two plants of closely related monocot varieties having vascular cambia.
 (iii) Wind pollinated flowers are small in size.

(i)

(ii)

(iii)

- (A) *Plasmodium* Monocot Small
 (B) *Microstomum* Dicot Large
 (C) *Spirogyra* Dicot Small
 (D) *Planaria* Monocot Large

ANSWER KEY

1. (A) 2. (D) 3. (A) 4. (C) 5. (C) 6. (C) 7. (D) 8. (C) 9. (A) 10. (C)