

PART - I

Note: (i) Answer All the questions.

12 X 1 = 12

(ii) Choose the most appropriate answer from the given four alternatives and write option code and the corresponding answer.

- In which of the following sport the turning of effect of force used
a) swimming b) tennis c) cycling d) hockey
- In a myopic eye, the image of the object is formed
a) behind the retina
b) on the retina c) in front of the retina d) on the blind spot
- In the Given diagram, the possible direction of heat energy transformation is
a) $A \leftarrow B$, $A \leftarrow C$, $B \leftarrow C$ b) $A \rightarrow B$, $A \rightarrow C$, $B \rightarrow C$
c) $A \rightarrow B$, $A \leftarrow C$, $B \rightarrow C$ d) $A \leftarrow B$, $A \rightarrow C$, $B \leftarrow C$
- Which of the following is the universal solvent?
a) Acetone b) Benzene c) Water d) Alcohol
- Which of the following pairs can be the successive members of a homologous series?
a) C_3H_8 and C_4H_{10} b) C_2H_2 and C_2H_4 c) CH_4 and C_3H_6 d) C_2H_5OH and C_4H_9OH
- Mass of 1 mole of Nitrogen atom is
a) 28 amu b) 14 amu c) 28 g d) 14 g
- Which is formed during anaerobic respiration
a) Carbohydrate- b) Ethyl alcohol c) Acetyl CoA d) Pyruvate
- Node of Ranvier is found in
(a) muscles (b) axons (c) dendrites (d) cyton
- Which one of the following hormones is naturally not found in plants:
a) 2, 4-D b) GA3 c) Gibberellin d) IAA
- 9 : 3 : 3 : 1 ratio is due to
a) Segregation b) Crossing over
c) Independent assortment d) Recessiveness
- Which type of cancer affects lymph nodes and spleen?
a) Carcinoma b) Sarcoma c) Leukemia d) Lymphoma
- Where you will create category of blocks?
a) Block palette b) Block menu c) Script area d) sprite

PART - II

Note: Answer any seven questions. Question No.22 is compulsory.

7 X 2 = 14

- Differentiate mass and weight.
- Define one calorie.
- Define: Atomicity
- State two conditions necessary for rusting of iron.
- Draw and label the parts of a sperm

- 18) What is bolting? How can it be induced artificially?
- 19) Why is Archaeopteryx considered to be a connecting link between reptiles and birds?
- 20) What is the importance of rainwater harvesting?
- 21) Define reflex arc.
- 22) A beam of light passing through a diverging lens of focal length 0.3m appear to be focused at a distance 0.2m behind the lens. Find the position of the object.

PART - III

Note: Answer any seven questions.

Question No.32 is compulsory.

7 X 4 = 28

- 23) Deduce the equation of a force using Newton's second law of motion.
- 24) Differentiate the eye defects: Myopia and Hypermetropia
- 25) a) What is meant by electric current?
b) Name and define its unit.
- 26) A is a reddish brown metal, which combines with O_2 at $< 1370\text{ K}$ gives B, a black coloured compound. At a temperature $> 1370\text{ K}$, A gives C which is red in colour. Find A, B and C with reaction.
- 27) (a) What is an Alloy? (b) Give the reasons for Alloying.
- 28) (a) Name the three basic tissues system in flowering plants.
(b) What are the factors affecting Photosynthesis.
- 29) a) What is pollination? Mention the types of pollination.
b) Write the advantages and disadvantages of self pollination?
- 30) Enumerate the functions of blood.
- 31) a) What are the contributing factors for obesity?
b) How does locomotion takes place in leech?
- 32) (a) Calculate the pH of 0.01 M HNO_3 ?
(b) A solution was prepared by dissolving 25 g of sugar in 100 g of water. Calculate the mass percentage of solute.

PART - IV

Note: Answer all the questions.

Draw diagrams wherever necessary.

3 X 7 = 21

- 33) (a) (i) Who discovered natural radioactivity?
(ii) Write any three features of natural and artificial radioactivity.
(iii) Give any three uses of radio isotopes in the field of agriculture? (OR)
(b) (i) Draw a ray diagram to show the image formed by a convex lens when the object is placed between F and 2F.
(ii) State Rayleigh's law of scattering.
(iii) Differentiate convex lens and concave lens.
- 34) (a) (i) What happens when $MgSO_4 \cdot 7H_2O$ is heated?
(ii) Explain hygroscopic substances and deliquescent substances with examples. (OR)
(b) (i) How is ethanol manufactured from sugar?
(ii) Differentiate reversible and irreversible reactions. (any two points)
- 35) (a) (i) How is the structure of DNA organized?
(ii) Why are thyroid hormones referred as personality hormone? (OR)
(b) (i) List the prevention and controlling methods of AIDS.
(ii) Name the secondary sex organs in male.