

COMMON SECOND REVISION TEST - 2023

Standard X

Reg.No.

SCIENCE

Time : 2.30 hrs

Part - I

Marks : 75

12 x 1 = 12

I. Choose the correct answer:

- Newton's III law is applicable
 - for a body is at rest
 - for a body in motion
 - both (a) and (b)
 - only for bodies with equal masses
- Temperature is the average _____ of the molecules of a substance.
 - difference in K.E and P.E
 - sum P.E and K.E
 - difference in T.E and P.E
 - difference in K.E and T.E
- The velocity of sound in air at a particular temperature is 330 ms^{-1} . What will be its value when temperature is doubled and the pressure is halved?
 - 330 ms^{-1}
 - $330 \times \sqrt{2} \text{ ms}^{-1}$
 - 165 ms^{-1}
 - $\frac{330}{\sqrt{2}} \text{ ms}^{-1}$
- The chief ore of iron is _____
 - haematite
 - copper pyrites
 - magnetite
 - bauxite
- Identify the non-aqueous solution.
 - sodium chloride in water
 - glucose in water
 - copper sulphate in water
 - sulphur in carbon-di-sulphide
- The molecular formula of ethanol
 - CH_3COOH
 - CH_3CHO
 - $\text{CH}_3\text{CH}_2\text{OH}$
 - $\text{CH}_3\text{-O-CH}_3$
- Casparian strips are present in the _____ of the root.
 - cortex
 - pericycle
 - pith
 - endodermis
- A patient with blood group 'O' was injured in an accident and has blood loss. Which group of blood should be used by doctor for transfusion?
 - 'O' group
 - AB group
 - A or B group
 - all blood group
- Node of ranvier is found in
 - muscles
 - axons
 - dendrites
 - cyton
- Thyroid gland requires _____ of iodine everyday for the production of thyroxine.
 - $110 \mu\text{g}$
 - $100 \mu\text{g}$
 - $120 \mu\text{g}$
 - $105 \mu\text{g}$
- The _____ units form the backbone of the DNA.
 - 5 carbon sugar
 - phosphate
 - nitrogenous bases
 - sugar phosphate
- The term ethanobotany was coined by _____.
 - Khorana
 - J.W.Harsberger
 - Ronald Ross
 - Hugo de Vries

Part - II

II. Answer any 7 questions. (Q.No.22 is compulsory)

7 x 2 = 14

- What is power of accommodation of eye?
- Why is tungsten metal used in bulbs, but not in fuse wires?
- Say true or false. If false, correct the statement.

False a) Noble gases are diatomic \rightarrow Monoatomic
 False b) Molar mass of CO_2 is 42 g \rightarrow 44 gm.

16. Classify the following substances into deliquescent hygroscopic.

1) Con. sulphuric acid, copper sulphate pentahydrate silica gel, calcium chloride and gypsum salt.

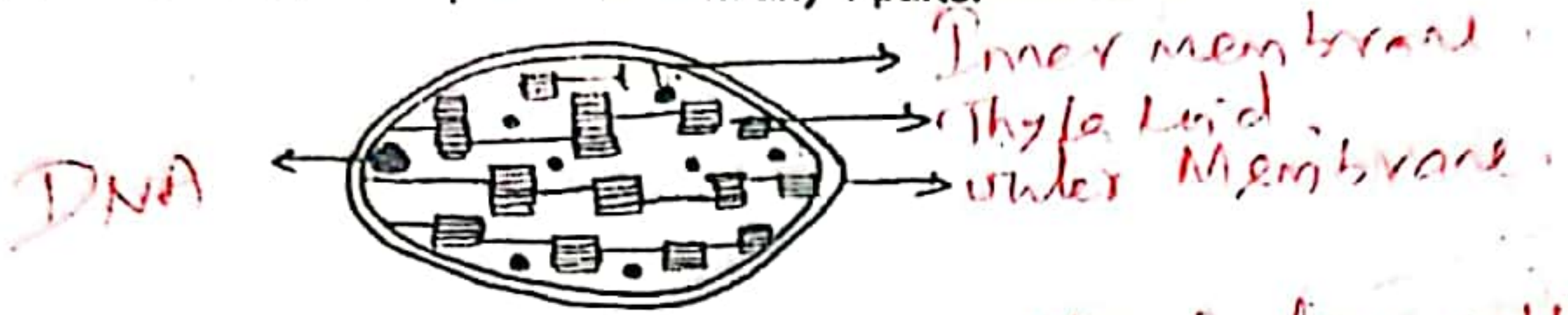
2

2

1

2

17. Draw the structure of chloroplast and mark any 4 parts. (2)



18. a) Give the common name of the Hirudinaria granulosa. *The Indian cattle leech.*
 b) Why is the teeth of rabbit called heterodont?

19. State the applications of DNA fingerprinting technique.

20. Match the following :

- | | | | |
|---------------|---|--------------------------|---|
| a) Sarcoma | - | Stomach cancer | 2 |
| b) Carcinoma | - | Excessive thirst | 3 |
| c) Polydipsia | - | Excessive hunger | 4 |
| d) Polyphagia | - | Connective tissue cancer | 1 |

21. Fill in the blanks :

- a) Chipko movement is initiated against deforestation
 b) Nandgi is a biosphere reserve in Tamilnadu.

22. If the pH of a solution is 4.5, what is its pOH?

Part - III

III. Answer any 7 questions. (Q.No.32 is compulsory)

23. State Newton's Law of Motion.

24. a) Define one Roentgen

b) State Soddy and Fajan's displacement law.

25. a) Identify the bond between H and F in HF molecule.

b) What property forms the basis of identification?

c) How does the property vary in periods and in groups?

26. Explain the types of double displacement reactions with examples.

27. a) Why is the sinoatrial node called the pacemaker of heart?

b) Differentiate between systemic circulation and pulmonary circulation.

28. a) Name the gaseous plant hormone. Describe its three different actions in plants.

b) Which hormone is known as stress hormone in plants?

29. Write a neat labelled diagram. Describe the parts of a typical angiosperm ovule.

30. What is the importance of rainwater harvesting?

31. How do you differentiate homologous organs from analogous organs?

32. Two resistors when connected in parallel give the resultant resistance of 2 ohm, but when connected in series the effective resistance becomes 9 ohm. Calculate the value of each resistance.

Part - IV

IV. Answer all the questions.

3 x 7 = 21

33. a) State and prove the law of conservation of linear momentum. (OR)

b) Explain the construction and working of a 'compound microscope'.

34. a) Calculate the number of moles in

i) 27 g of Al ii) 1.51×10^{23} molecules of NH_4Cl (OR)

b) i) How is ethanoic acid prepared from ethanol? Give the chemical equation.

ii) Differentiate soaps and detergents.

35. a) Illustrate the structure and functions of brain. (OR)

b) i) Changes in lifestyle is a risk factor for occurrence of cardiovascular diseases. Can it be modified? If yes, suggest measures for prevention.

ii) How does Insulin deficiency occur?

34) a) i) Number of moles = $\frac{\text{Given mass}}{\text{Atomic mass}} = \frac{27}{27} = 1 \text{ mole}$ 23
 ii) Number of moles = $\frac{\text{Number of molecules}}{\text{Avogadro number}} = \frac{1.51 \times 10^{23}}{6.022 \times 10^{23}} = 0.25 \text{ mole}$ 23

Compulsory Qns Answer10th Science, Second Revision Answer Key

22) $pH = 4.5$, $pOH = ?$ (2 Mark Qns)

$$pH + pOH = 14 \quad / \quad pOH = 14 - 4.5$$

$$\boxed{pH = 9.5}$$

X

32) Given: $\frac{1}{R_1} + \frac{1}{R_2} = \frac{1}{2}$ / $R_1 + R_2 = 9$.

$$R_1 = ? \quad R_2 = ?$$

In series connection: $R_1 + R_2 = 9$

$$R_2 = 9 - R_1$$

In parallel connection: $\frac{1}{R_1} + \frac{1}{R_2} = \frac{1}{2}$ ($R_2 = 9 - R_1$)

$$= \frac{1}{R_1} + \frac{1}{9 - R_1} = \frac{1}{2}$$

$$= \frac{9 - R_1 + R_1}{R_1(9 - R_1)} = \frac{1}{2}$$

$$= \frac{9}{9R_1 - R_1^2} = \frac{1}{2} \quad (18 = 9R_1 - R_1^2)$$

$$= R_1^2 - 9R_1 + 18 = 0 \quad (\text{factorize})$$

$$= (R_1 - 3)(R_1 - 6) = 0$$

$$\therefore R_1 = 3 \text{ (or) } R_1 = 6$$

$$R_1 = 3\Omega \text{ Then } R_2 = 9 - 3 = \underline{\underline{6\Omega}}$$

$$R_1 = 6\Omega \text{ Then } R_2 = 9 - 6 = \underline{\underline{3\Omega}}$$

