



(2)

X Science

Part - II

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

7 x 2 = 14

13. Define inertia. Give its classification.
14. Why are traffic signals red in colour?
15. Mention two cases in which there is no Doppler effect in sound.
16. True or False: (If false, give the correct statement)
- Silver metal can displace hydrogen gas from nitric acid.
 - On dipping a pH paper in a solution, it turns into yellow. Then the solution is basic.
17. Name the simplest ketone and give its structural formula.
18. What organs are attached to the two bronchi?
19. Match the following hormones with their deficiency states.
- | Hormones | Disorders |
|-------------------|----------------------|
| a) Insulin | - Acromegaly |
| b) Parathormone | - Tetany |
| c) Growth hormone | - Diabetes insipidus |
| d) ADH | - Diabetes mellitus |
20. What will happen if you cut planaria into small fragments?
21. Define living fossils. Give example.
22. Calculate the resistance of a conductor through which a current of 3 A passes, when the potential difference between its ends is 30 V.

Part - III

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

7 x 4 = 28

23. Deduce the equation of a force using Newton's second law of motion.
24. a) The eyes of the nocturnal birds like owl are having a large cornea and a large pupil. How does it help them?
b) Differentiate Myopia and Hypermetropia.
25. a) State Joule's law of heating.
b) What are the advantages of LED TV over the normal TV?
26. Derive the relationship between relative molecular mass and vapour density.
27. An organic compound 'A' is widely used as a preservative and has the molecular formula $C_2H_5O_2$. This compound reacts with ethanol to form a sweet smelling compound 'B'.
- Identify the compound 'A'
 - Write the chemical equation for its reaction with ethanol to form compound 'B'.
 - Name the process.
28. How nerve impulses are transferred from one neuron to next neuron?
29. How do you differentiate homologous organs from analogous organs?
30. a) Differentiate Aerobic and Anaerobic respiration.
b) Draw and label the structure of chloroplast.
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31. What is the role of fat in the cause of atherosclerosis?

32. a) A radon specimen emits radiation of 3.7×10^3 GBq per second. Convert this disintegration in terms of Curie (One Curie = 3.7×10^{10} disintegration per second)

b) Lemon Juice has a pH 2, what is the concentration of H^+ ions?

Part - IV

IV. Answer all the questions: 3 x 7 = 21
(Draw diagrams wherever necessary)

33. a) i) Explain the experiment of measuring the real and apparent expansion of a liquid with a neat diagram.

ii) If you keep ice at $0^\circ C$ and water at $0^\circ C$ in either of your hands, in which hand you will feel more chillness? Why?

(or)

b) i) A source producing a sound of frequency 500 Hz is moving towards a listener with a velocity of 30 ms^{-1} . The speed of the sound is 330 ms^{-1} . ~~The speed of the sound is 330 ms^{-1} .~~ What will be the frequency heard by listener?

ii) The ratio of masses of a two planets is 2:3 and the ratio of their radii is 4:7. Find the ratio of their accelerations due to gravity.

34. a) i) Calculate the number of water molecule present in one drop of water which weights 0.18 g.

ii) Calculate the number of moles in 46 g of sodium.

iii) Calculate the gram molar mass of CO_2 .

(or)

b) i) Write notes on

1) Saturated solution

2) Unsaturated solution

ii) In what way hygroscopic substances differ from deliquescent substance.

35. a) i) How does locomotion take place in leech?

ii) Why are leucocytes classified as granulocytes and agranulocytes? Name each cell and mention its functions.

(or)

b) i) How is the structure of DNA organised? What is the biological significance of DNA?

ii) List any three activities based on 3R approach to conserve natural resources.

$$\begin{array}{r} 3 \\ 19 \\ \hline 316 \end{array}$$

$$\begin{array}{r} 5 \\ 49 \\ \hline 294 \end{array}$$

$$\begin{array}{r} \dots\dots \\ .06 \\ 49 \overline{)300} \\ \underline{294} \end{array}$$

$$\begin{array}{r} 2 \\ 4 \\ 3.7 \\ \hline 389 \end{array}$$