HALF YEARLY EXAMINATION - 2023

10 - STD   ### SCIENCE

Time : 3.00 Hrs

Marks : 75

PART - I

Note: (i) Answer All the questions.
(ii) Choose the most appropriate answer from the given four alternatives and write option code and the corresponding answer.

12 X 1 = 12

1) Newton's III law is applicable
   a) for a body is at rest   b) for a body in motion
   c) both a & b   d) only for bodies with equal masses

2) Kilowatt hour is the unit of
   a) resistivity   b) conductivity   c) electrical energy   d) electrical power

3) _____ isotope is used for the treatment of cancer.
   a) Radio Iodine   b) Radio Cobalt   c) Radio Carbon   d) Radio Nickel

4) Which of the following is a triatomic molecule?
   a) Glucose   b) Helium   c) Carbon dioxide   d) Hydrogen

5) Solubility of NaCl in 100 ml water is 36 g. If 25 g of salt is dissolved in 100 ml of water how much more salt is required for saturation _____.
   a) 12g   b) 11g   c) 16g   d) 20g

6) $C_2H_5 OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$ is a
   a) Reduction of ethanol   b) Combustion of ethanol
   c) Oxidation of ethanoic acid   d) Oxidation of ethanal

7) Which is the correct sequence of blood flow
   (a) ventricle ->atrium -> vein-> arteries   (b) atrium-> ventricle -> veins -> arteries
   (c) atrium -> ventricle -> arteries -> vein (d) ventricles -> vein -> atrium -> arteries.

8) The outer most of the three cranial meninges is
   (a) arachnoid membrane   (b) piamater   (c) duramater   (d) myelin sheath

9) Kreb's cycle takes place in:
   (a) chloroplast   (b) mitochondrial matrix
   (c) stomata   (d) inner mitochondrial membrane

10) The large elongated cells that provide nutrition to developing sperms are
    a) Primary germ cells   b) Sertoli cells   c) Leydig cells   d) Spermatogonia

11) Pusa Komal is a disease resistant variety of_____.
    a) sugarcane   b) rice   c) cow pea   d) maize

12) Match the following:
    (1) Thyroxine   -   (i) Diabetes mellitus
    (2) Insulin   -   (ii) Acromegaly
    (3) Parathormone   -   (iii) simple goiter
    (4) Growth Hormone   -   (iv) Tettany
    a) 1 –(i), 2 –(ii), 3 – (iii), 4 –(iv)   b) 1 –(iv), 2- (i), 3 – (ii), 4 –(iii)
    c) 1 – (iii), 2 – (i), 3 – (iv), 4 – (ii)   d) 1 – (iv), 2 – (iii), 3 – (ii), 4 – (i)

PART – II

Note: Answer any seven questions. Question No.22 is compulsory. 7 X 2 = 14

13) Differentiate convex lens and concave lens.

14) State Boyle's law.

15) What is rust? Give the equation for formation of rust.

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16) **Fill in the blanks**
   (i) The pH of a fruit juice is 5.6. If you add slaked lime to this juice, its pH _____
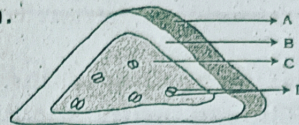   *(increase/decrease)*
   (ii) Electrolysis is type of _____ reaction.
17) Identify the parts A, B, C and D in the given figure.
18) What are Okazaki fragments?
19) How can you determine the age of the fossils?
20) Match the following:

Column A   Column B
1. Soil erosion   -   (a) acid rain
2. Bio-gas   -   (b) non-renewable energy
3. Natural gas   -   (c) removal of vegetation
4. Greenhouse gas   -   (d) CO_2

21) Write a short note on editor and its main parts?
22) A strong sound signal is sent from a ship towards the bottom of the sea. It is received back after 1s. What is the depth of sea given that the speed of sound in water 1450 ms^{-1}?

PART – III
Note: Answer any seven questions. Question No.32 is compulsory. 7 X 4 = 28

23) Describe rocket propulsion.
24) What are the uses of Simple microscope?
25) List the merits of LED bulb.
26) How does pH play an important role in everyday life?
27) In what way hygroscopic substances differ from deliquescent substances.
28) Differentiate : Aerobic and Anaerobic respiration
29) How does locomotion take place in leech?
30) What are the steps involved in the Prevention and Control of AIDS disease?
31) Discuss the importance of biotechnology in the field of medicine.
32) How many grams are there in the following?
   i. 2 moles of hydrogen molecule, H_2 ii. 3 moles of chlorine molecule, Cl_2
   iii. 5 moles of sulphur molecule, S_8 iv. 4 moles of phosphorous molecule, P_4

PART - IV
Note: Answer all the questions. Draw diagrams wherever necessary. 3 X 7 = 21

33) (a) (i) Derive the ideal gas equation. (5)
   (ii) Why a spanner with a long handle is preferred to tighten screws in heavy vehicles? (2)
   (OR)   (b) (i) Compare the properties of alpha, beta and gamma radiations. (5)
   (ii) Mention two cases in which there is no Doppler effect in sound? (2)
34) (a) (i) Give the salient features of "Modern atomic theory". (5)
   (ii) Classify the following compounds based on the pattern of carbon chain and give their
   structural formula: (i) Propane (ii) Benzene (iii) Cyclobutane (iv) Furan (2) **(OR)**
   (b) (i) Differentiate reversible and irreversible reactions. (5)
   (ii) What are the methods of preventing Corrosion. (2)
35) (a) (i) With a neat labelled diagram explain the structure of a neuron. (5)
   (ii) What is the importance of valves in the heart? (2) **(OR)**
   (b) (i) With a neat labelled diagram describe the parts of a typical angiospermic ovule. (5)
   (ii) What is the importance of rainwater harvesting? (2)

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