COMMON HALF YEARLY EXAMINATION - 2024
Standard - X

Time : 3.00 hrs   **SCIENCE**   Marks: 75

Part - I

Answer all the questions. Choose the most appropriate answer from the given 4 alternatives and write the option code and the corresponding answer: 12×1=12

1) One kilogram force equals to
   a) 9.8 dyne   b) $9.8 \times 10^4 N$ c) 98×10^4 dyne   d) 980 dyne

2) The value of universal gas constant
   a) 3.81 J mol^{-1}K^{-1} b) 8.03 J mol^{-1}K^{-1} c) 1.38 J mol^{-1}K^{-1} d) 8.31 J mol^{-1}K^{-1}

3) Sound can travel through _____
   a) Solids   b) Liquids   c) Both (a) and (b)   d) Vacuum

4) _____ aprons are used to protect us from gamma radiations
   a) Lead oxide   b) Iron   c) Lead   d) Aluminium

5) 1 mole of any substance contains _____ molecules
   a) 6.023×10^{23} b) 6.023×10^{-23} c) 3.0115×10^{23} d) 12.046×10^{23}

6) Deliquescence is due to _____
   a) Strong affinity to water   b) Less affinity to water
   c) Strong hatred to water   d) Inertness to water

7) Powdered $CaCO_3$ reacts more rapidly than flaky $CaCO_3$ because of _____
   a) large surface area   b) high pressure
   c) high concentration   d) high temperature

8) The wall of human heart is made of
   a) Endocardium   b) Epicardium   c) Myocardium   d) All of the above

9) Which one of the following hormones is naturally not found in plants.
   a) 2,4-D   b) GA3   c) Gibberellin   d) IAA

10) The term Ethnobotany was coined by
    a) Khorana   b) J.W. Harsbberger   c) Ronald Ross   d) Hugo de Vries

11) Polyphagia is a condition seen in
    a) Obesity   b) Diabetes mellitus   c) Diabetes insipidus   d) AIDS

12) Soil erosion can be prevented by
    a) deforestation   b) afforestation   c) over growing   d) removal of vegetation

Part - II

II. Answer any seven of the following. Question number 22 is compulsory: 7×2=14

13) Define moment of a couple.
14) What are the causes of 'Myopia'?
15) What is Ionisation energy?
16) Differentiate reversible and irreversible reactions.
17) How is ethanoic acid prepared from ethanol? Give the chemical equation.
18) How does leech suck blood from the host?
19) a) Which part of human brain acts as relay center.
    b) Name the parts of hind brain.
20) Write the characteristics of insect pollinated flowers.
21) State the applications of DNA fingerprinting technique.
22) An electric heater of resistance 5Ω is connected to an electric source. If a current of 6A flows through the heater, then find the amount of heat produced in 5 minutes.

Part - III

III. Answer any seven of the following. Question number 32 is compulsory: 7×4=28

23) a) Define one calorie
    b) Mention two cases in which there is no Doppler effect in sound?

24) a) Give any two uses of radio isotopes in the field of agriculture?
    b) What is critical mass

25) a) Define: Atomicity
    b) What are Saturated solution?

26) a) How is diastema formed in rabbit?
    b) Draw the given diagram and label the parts.
       i) Dentrites
       ii) Axon
       iii) Cyton
       iv) Nucleus

27) a) Write notes on triple fusion
    b) **Match**

Hormones	Disorders
i) Thyroxine	Acromegaly
ii) Insulin	Tetany
iii) Parathormone	Simple goiter
iv) Growth hormone	Diabetes mellitus

28) Define Ethnobotany and write its importance.

29) a) Distinguish between somatic gene therapy and germ line gene therapy
    b) What is Stage?

30) a) What are Psychotropic drugs?
    b) What is metastasis?

31) What is the importance of rainwater harvesting?

32) An organic compound 'A' is widely used as a to preservative and has the molecular formula $C_2H_4O_2$. This compound reacts with ethanol to form a sweet smelling compound 'B'.
    i) Identify the compound 'A'.
    ii) Write the chemical equation for its reaction with ethanol to form compound B.
    iii) Name the process

Part - IV

IV. Answer all the questions in detail:-   **3×7=21**

33) a) i) State Newton's second law.
      ii) List the properties of light
      iii) What is co-efficient of cubical expansion?   **[or]**
   b) i) Define electric potential and potential difference.
      ii) Name any two devices, which are working on the heating effect of the electric current.
      iii) A sound wave has a frequency of 200Hz and a speed of 400ms⁻¹ in a medium. Find the wavelength of the sound wave.

34) a) i) Give the salient features of "Modern atomic theory".
      ii) What is rust? Give the equation for formation of rust.   **[or]**
   b) i) Write notes on various factors affecting solubility.
      ii) What is a chemical equilibrium? What are its characteristics?

35) a) i) Differentiate Aerobic and Anaerobic respiration.
      ii) What is Transpiration? Give the importance of transpiration.   **[or]**
   b) i) Write the physiological effects of Gibberellins.
      ii) What do you understand by the term phenotype and genotype?
      iii) What are Okazaki fragments?

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