

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: $12 \times 1 = 12$

- 1) One kilogram force equals to
a) 9.8 dyne b) $9.8 \times 10^4 \text{N}$ c) $98 \times 10^4 \text{dyne}$ d) 980 dyne
- 2) The value of universal gas constant
a) $3.81 \text{ J mol}^{-1} \text{K}^{-1}$ b) $8.03 \text{ J mol}^{-1} \text{K}^{-1}$ c) $1.38 \text{ J mol}^{-1} \text{K}^{-1}$ d) $8.31 \text{ J mol}^{-1} \text{K}^{-1}$
- 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. Harsberger 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: $7 \times 2 = 14$

- 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.

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Part - III

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

- 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 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:-

 $3 \times 7 = 21$

- 33) a) i) State Newton's second law.
ii) List the properties of light
iii) What is coefficient 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?
