

COMMON HALF YEARLY EXAMINATION - 2025

Std - X

Time : 3.00 Hours

SCIENCE

Marks:75

I. Choose the correct answer:

12 x 1 = 12

- Inertia of a body depends on
 - weight of the object
 - acceleration due to gravity of the planet
 - mass of the object
 - both a and b
 - SI unit of resistance is
 - mho
 - joule
 - ohm
 - ohm meter
 - aprons are used to protect us from gamma radiations.
 - Lead oxide
 - Iron
 - Lead
 - Aluminium
 - The gram molecular mass of oxygen molecule is
 - 16g
 - 18g
 - 32 g
 - 17 g
 - is an important metal to form amalgam.
 - Ag
 - Hg
 - Mg
 - Al
 - Which of the following statements are correct about a chemical equilibrium?
 - It is dynamic in nature
 - The rate of the forward and backward reactions are equal at equilibrium
 - Irreversible reactions do not attain chemical equilibrium
 - The concentration of reactants and products may be different
 - i, ii and iii
 - i, ii and iv
 - ii, iii and iv
 - i, iii and iv
 - $C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$ is a
 - reduction of ethanol
 - combustion of ethanol
 - oxidation of ethanoic acid
 - oxidation of ethanal
 - Oxygen is produced at what point during photosynthesis?
 - when ATP is converted to ADP
 - When CO_2 is fixed
 - when H_2O is splitted
 - all of these
 - Which is the sequence of correct blood flow
 - ventricle - atrium - vein - arteries
 - atrium - ventricle - veins - arteries
 - atrium - ventricle - arteries - vein
 - ventricles - vein - atrium - arteries
 - In humans, a male and a female gamete fuse and form a zygote. The condition of zygote is
 - haploid
 - diploid
 - triploid
 - tetraploid
 - Where does alcohol effect immediately after drinking?
 - eyes
 - auditory region
 - liver
 - central nervous system
 - All files are stored in the
 - folder
 - box
 - paint
 - scanner
- II. Answer any seven of the following questions.
- Q.No:22 is compulsory.
- 7 x 2 = 14
- Draw a ray diagram to show the image formed by a convex lens when the object is placed between F and 2F.
 - State Boyle's law.
 - Use the analogy to fill the blank.
 - Bats:ultrasonic : Earth quake :
 - Whispering gallery : application of echo; tracking a satellite:.....
 - Define: Relative atomic mass.
 - What is rust? Give the equation for formation of rust.

18. If the pH value of solution is zero then what will be the nature of the solution? Give reason.
19. Match column I, II and III correctly.

Organs	Membranous covering	Location
1. Brain	Pleura	abdominal cavity
2. Kidney	Capsule	mediastinum
3. Heart	meninges	enclosed in thoracic cavity
4. Lungs	pericardium	cranial cavity

20. How are e-wastes generated?
21. What are Okazaki fragments?
22. A strong sound signal is sent from a ship towards the bottom of the sea. It is received back after 2s. What is the depth of sea given that the speed of sound in water 1450ms^{-1} ?

III. Answer any 7 of the following questions.

Q.No:32 is compulsory.

$7 \times 4 = 28$

23. Describe rocket propulsion.
24. a) What are the advantages of LED TV over the normal TV?
b) List the merits of LED bulb.
25. What is the nuclear reactor? Explain its essential parts with their functions.
26. Give the salient features of "Modern atomic theory".
27. a) What happens when $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ is heated? Write the appropriate equation.
b) Define solubility.
28. Explain the factors influencing the rate of a reaction.
29. How is the digestive system of rabbit suited for herbivorous mode of feeding?
30. Write the physiological effects of gibberellins.
31. Suggest measures to overcome the problems of an alcoholic.
32. What is the pH of 1.0×10^{-5} molar solution of KOH?

IV. Answer all the questions. Draw diagrams wherever necessary: $3 \times 7 = 21$

33. a) i) Explain the construction and working of a 'Compound Microscope'.
ii) What is refractive index? (OR)
b) What is an echo?
i) State two conditions necessary for hearing an echo.
ii) What are the medical applications of echo?
iii) How can you calculate the speed of sound using echo?
34. a) The electronic configuration of metal A is 2, 8, 18, 1. The metal A when exposed to air and moisture forms B a green layered compound. A with con. H_2SO_4 forms C and D along with water. D is a gaseous compound. Find A, B, C and D. (OR)
b) i) How is ethanol manufactured from sugarcane?
ii) Differentiate soaps and detergents.
35. a) i) Differentiate: Aerobic and Anaerobic respiration.
ii) What are the structures involved in the production of brain? (OR)
b) i) Discuss the importance of biotechnology in the field of medicine.
ii) Mention the diseases caused by tobacco smoke.