Reg. No.: | | | | | | |

COMMON HALF YEARLY EXAMINATION - 2025

Std - X

SCIENCE

Time : 3.00 Hours Marks:75

I. Answer all the questions: 12 x 1 = 12

1. If the earth shrinks to 50% of its real radius its mass remaining the same, the weight of a body on the earth will
   a) decrease by 50% b) increase by 50% c) decrease by 25%
   d) increase by 300%
2. If a substance is heated or cooled, the linear expansion occurs along the axis of
   a) X or -X b) Y or -Y c) both a and b d) a or b
3. Which of the following is/are correct?
   i) Chain reaction takes place in a nuclear reactor and an atomic bomb.
   ii) the chain reaction in a nuclear reactor is controlled
   iii) The chain reaction in a nuclear reactor is not controlled
   iv) No chain reaction takes place in an atom bomb.
   a) i only correct b) i & ii are correct c) iv only correct d) iii&iv are correct
4. The distance between the two hydrogen nuclei of the molecule is .....
   a) 1.64A° b) 0.74A° c) 7A° d) 0.54A°
5. The pH of a solution is 3. Its [OH-] concentration is
   a) 1×10^{-3} M b) 3M c) 1×10^{-11} M d) 11M
6. Rectified spirit is an aqueous solution which contains about ..... of ethanol.
   a) 95.5% b) 75.5% c) 55.5% d) 45.5%
7. Which of the sequence of correct blood flow
   a) ventricle → atrium → vein → arteries b) atrium → ventricle → veins → arteries
   c) atrium → ventricle → arteries → vein d) ventricles → vein → atrium → arteries
8. Match the following and choose the correct option given below the table

Column I	Column II
A) Nissil's granules	- Forebrain
B) Hypothalamus	- Peripheral nervous system
C) Cerebellum	- Cyton
D) Schwann cell	- Hindbrain

   a) A-i, B-ii, C-iii, D-iv b) A-i, B-iv, C-iii, D-ii c) A-ii, B-iii, C-iv, D-i
   d) A -iii, B-i, C-iv, D-ii
9. The large elongated cells that provide nutrition to developing sperms are
   a) Primary germ cells b) Sertoli cells c) Leydig cells d) Spermatogonia
10. Pusa Komal is a disease resistant variety of .....
    a) sugarcane b) rice c) cow pea d) maize
11. Cancer of the epithelial is called
    a) Leukemia b) Sarcoma c) Carcinoma d) Lipoma
12. Where you will create category of blocks?
    a) Block palette b) Block menu c) Script area d) Spirte

II. Answer any seven questions. Q.No:22 is compulsory. 7 x 2 = 14

13. Differentiate mass and weight.
14. Why is tungsten metal used in bulbs, but not in fuse wires?
15. Give any two examples for heterodiatomic molecules.
16. Differentiate reversible and irreversible reactions.
17. What is respiratory quotient?
18. State whether the statements are true or false. Correct the false statement.
    a) Diastema is a gap between premolar and molar teeth in rabbit.
    b) The cerebral hemispheres of rabbit are connected by band of nerve tissue called corpora quadrigemina.

19. Identify the parts A, B, C and D.

20. What do you understand by the term phenotype and genotype?
21. What is living Fossils? Give example.
22. A person with myopia can see objects placed at a distance of 4m. If he wants to see objects at a distance of 20m, what should be focal length and power of the concave lens he must wear?

III. Answer any Seven questions. Q.No:32 is compulsory. **7 x 4 = 28**

23. a) Draw a ray diagram to show the image formed by a convex lens when the object is placed between F and 2F.
    b) What is co-efficient of real expansion?
24. a) State Joule's law of heating.
    b) Write any three features of natural and artificial radioactivity.
25. a) Write a different types of isotopes of oxygen and its percentage abundance.
    b) Name the acid that renders aluminium passive. Why?
26. a) Define combination reaction. Give one example for an exothermic combination reaction.
    b) How is ethanoic acid prepared from ethanol? Give the chemical equation.
27. a) List out the parasitic adaptations in leech.
    b) What is the importance of valves in the heart?
28. Classify neurons based on its structure.
29. a) Why are thyroid hormones referred as personality hormone?
    b) What are allosomes?
30. a) Why is Archaeopteryx considered to be a connecting link?
    b) Differentiate between outbreeding and inbreeding.
31. a) What are the various routes by which transmission of human immunodeficiency virus takes place?
    b) What is the importance of rainwater harvesting?
32. 16g of NaOH is dissolved in 100g of water a 25°C to form a saturated solution. Find the mass percentage of solute and solvent.

Part - IV

IV. Answer all questions. Draw diagrams wherever necessary. **3 x 7 = 21**

33. a) i) Describe rocket propulsion. (5)
    ii) Differentiate convex lens and concave lens. (2)
    b) i) What is an echo? (1)
    a) State two conditions necessary for hearing an echo. (2)
    b) What are the medical applications of echo? (1)
    c) How can you calculate the speed of sound using echo? (1)
    ii) State Boyle's law. (2)

(OR)

34. a) i) Give the salient features of "Modern atomic theory" (5)
    ii) State two conditions necessary for rusting of iron. (2)
    b) i) Arrive at, systematically, the IUPAC name of the compound.
    $CH_3 - CH_2 - CH_2 - OH$ (5)
    ii) Classify the following substances into deliquescent, hygroscopic. (2)
    a) Conc.sulphuric acid b) Copper sulphate penta hydrate, c) Silica gel
    d) Calcium chloride e) Gypsum salt

(OR)

35. a) i) What is transpiration? Give the importance of transpiration. (5)
    ii) Name the three basic tissues system in flowering plants. (2)
    b) i) With a neat labelled diagram describe the parts of a typical angiospermic ovule. (5)
    ii) What are the objectives for replacing non-conventional energy resources from conventional energy resources? (2)