HALF YEARLY EXAMINATION - 2023

Class : 10

Time : 3-00 Hours

SCIENCE

Reg.No

Marks : 75

PART - I

Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.   **12X1=12**

1. Which is a incorrect statement ?
   a) The linear momentum measures the impact of a force on a body
   b) Impulse is equal to the magnitude of change in momentum
   c) Newton's law of gravitation helps to predict the path of the astronomical bodies.
   d) Weight of a body is greater of the polar region and less at the equator

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

3. In which of the following reaction, the atomic number decreases by 2 of the daughter nucleus
   a) gamma decay   b) Beta decay   c) Alphadecay   d) Neutron decay

4. The Correct order of decreasing ionisation energy of the following elements.
   a) CS>Rb>K>Na>Li   b) Li>Na>K>Rb>Cs   c) K>Na>Li>Rb>Cs   d) Rb>K>Na>Li>Cs

5. Chemical formula of rust is
   a) $FeO.xH_2O$ b) $FeO_4.xH_2O$ c) $Fe_2O_3.xH_2O$ d) FeO

6. Solubility of Nacl in 100ml 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

7. The molecular formula of an open chain organic compound is C_3H_4 The class of the compound is
   a) Alkane   b) Alkyne   c) Alkene   d) Alcohol

8. The essential parts of a flower are
   a) Calyx and corolla   b) Corolla and Gynoecium
   c) Calyx and Androecium   d) Androecium and Gynoecium

9. The body of leech has
   a) 23 segments   b) 33 segments   c) 38 segments   d) 30 segments

10. LH is secreted by
    a) Adrenal gland   b) Thyroid gland   c) Anterior pituitary   d) Hypothalamus

11. The best way of direct dating fossils of recent origin is by
    a) Radio-Carbon method   b) Postassium-argon method
    c) Uranium lead method   d) Both (a) and (c)

12. Which type of cancer affects lymph nodes and spleen?
    a) Carcinoma   b) Sarcoma   c) Leukemia   d) Lymphoma

PART - II

Answer any 7 questions (Q.No.22 is compulsory)   **7x2=14**

13. State the universal law of gravitation.
14. What are the causes of Hypermeteropia?
15. Name three animals, Which can hear ultrasonic Vibrations.
16. Differentiate : Atoms and molecules.

17. The aquatic animals live more in cold region why?
18. Write the IUPAC Name of the following compounds
    a) CH_3CHO b) CH_3COCH_3
19. What is the importance of valves in the heart?
20. Draw and label the structure of human sperm
21. What is Scratch?
22. If a 25 N and a 15 N forces acting opposite to one another. Find the resultant force and the direction of action of the resultant force.
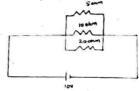
PART - III

Answer any 7 questions. (Q.No.32 is compulsory)   7X4=28

23. List any four properties of light.
24. Derive the ideal gas equation
25. Compare the properties of alpha beta and gamma radiations.
26. a) What is the principle of froth flotation process?
    b) Find the product i)$Cu+O_2$ $\xrightarrow{<1370K}$?   ii)$Cu+O_2$ $\xrightarrow{>1370K}$?
27. What is a chemical equilibrium ? what are its characteristics?
28. Explain the structure of a Chloroplast.
29. Why did mendel select pea plant for his experiments?
30. Discuss the importance of biotechnology in the field of medicine.
31. a) How does insulin deficiency occur?
    b) Match Columns I, II and III Correctly

Organs	Membranous covering	Location
Brain	Pleura	abdominal cavity
Kidney	Capsule	Mediastinum
Heart	Meninges	enclosed in thoracic cavity
Lungs	Pericardium	Cranial Cavity

32. In a Circuit diagram given below, three resistons R1, R2 and R3 of $5\Omega, 10\Omega$, and 20 Ω respectively are connected as shows
    a) Current through each resistor
    b) Total current in the Circuit
    c) Total resistance in the Circuit

PART - IV

Answer all the questions. Draw diagram wherever necessary   3X7=21

33. a) Draw ray diagram showing the image formation by a convex lens when a
       (i)object is placed at infinity   ii) object is placed beyond C   iii) object is placed at C
       iv) object is placed between F and C and find out position. Size and nature of the images
       [OR]
    b) With the help of a circuit diagram derive the formula for the resultant resistance of three resistances connected a) in series and b) in parallel.
34. a) How is copper extracted from its ore? Explain the Various steps supported by chemical equations.   **[OR]**
    b) i)Explain the types of double displacement reactions with example.
       ii) Calculate the PH of 1.0×10^{-4} molar solution of HNO_3
35. a)What are the phases of menstrual cycle? Indicate the changes in the ovary and uterus
       [OR]
    b) How is the structure of DNA organised ? What is the biological signiicane of DNA?

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