



12-03-25

Standard 10

Time: 3.00 Hrs.

SCIENCE

Marks: 75

PART - I**Answer all the questions.****12×1=12****Choose the most appropriate answer:**

- 1) To project the rockets which of the following principles is required?
a) Newton's third law of motion b) Newton's law of gravitation
c) Law of conservation of linear momentum d) both a and c
- 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 travel in air with the speed of _____.
a) $340 \times 10^8 \text{ m/s}$ b) 340 m/s c) $3 \times 10^8 \text{ m/s}$ d) $3 \times 10^{-8} \text{ m/s}$
- 4) Unit of radioactivity is _____.
a) roentgen b) curie c) becquerel d) all the above
- 5) $1 \text{ amu} =$ _____.
a) Mass of ^{12}C atom b) Mass of hydrogen atom
c) $1/12$ th of the mass of a ^{12}C atom d) Mass of ^{16}O atom
- 6) The basis of modern periodic law is _____.
a) atomic number b) atomic mass
c) isotopic mass d) number of neutrons
- 7) An aqueous solution which contains about 25% of alcohol is _____.
a) 100 ml water 25 ml alcohol b) 25 ml water 25 ml alcohol
c) 75 ml water 25 ml alcohol d) 25 ml water 75 ml alcohol
- 8) TFM in soaps represents _____ content in soap.
a) Mineral b) Vitamin c) Fatty acid d) Carbohydrate
- 9) Krebs's cycle takes place in
a) Chloroplast b) Mitochondrial matrix (stroma)
c) Stomata d) Inner Mitochondrial membrane
- 10) The body of leech has _____.
a) 23 segments b) 33 segments c) 38 segments d) 30 segments
- 11) Syngamy results in the formation of _____.
a) Zoospores b) Conidia c) Zygote d) Chlamydospores
- 12) Which is used to edit programs?
a) Inkscape b) Script editor c) Stage d) Sprite

PART - II**Answer any seven questions. Question No. 22 is compulsory:****7×2=14**

- 13) Differentiate mass and weight.
- 14) State Rayleigh's law of scattering.
- 15) State Boyle's law.
- 16) What is the audible range of frequency?
- 17) Define Atomicity.
- 18) Draw and label the structure of oxysomes.
- 19) Write the dental formula of rabbit.
- 20) What is the importance of valves in the heart?
- 21) What do you understand by the phenotype and genotype?
- 22) Draw a ray diagram to show the image formed by a convex lens when the object is placed between F and 2F.

PART - III

Note: Answer any seven questions. Question No. 32 is compulsory. 7×4=28

- 23) a) Classify the types of force based on their application.
b) State Snell's law.
- 24) a) Define one calorie.
b) State Ohm's law.
- 25) a) Mention two cases in which there is no Doppler effect in sound.
b) Write any three features of natural and artificial radioactivity.
- 26) a) **Match the following:**
 - a) Fe - 59 - Age of fossil
 - b) I - 311 - Function of heart
 - c) Na - 24 - Leukemia
 - d) C - 14 - Thyroid disease
- b) State Soddy and Fajan's displacement law.
- 27) a) Write the different type of isotopes of oxygen and its percentage abundance.
b) Define Atomicity.
- 28) a) What is rust? Give the equation for formation of rust.
b) State two conditions necessary for rusting of iron.
- 29) a) What is respiratory quotient?
b) Name three pigments in flowering plant.
- 30) a) Enumerate the function of blood.
b) Function of Brain.
- 31) a) Name the secondary sex organs in male.
b) Name two maize hybrids rich in amino acids lysine.
- 32) Calcium carbonate is decomposed on heating in the following reaction.

$$\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$$
 - i) How many moles of calcium carbonate are involved in this reaction?
 - ii) Calculate the gram molecular mass of calcium carbonate involved in this reaction.
 - iii) How many moles of CO_2 are there in this equation?

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PART - IV

Note: Answer all questions. Draw diagrams wherever necessary. 3×7=21

- 33) a) i) Differentiate the eye defects Myopia and Hypermetropia.
ii) List the advantages of telescopes.
(OR)
- b) i) What are the advantages of LED TV over the normal TV?
ii) List the merits of LED Bulb.
- 34) a) i) Give the salient features of 'Modern atomic theory'.
ii) Differentiate atoms and molecules.
(OR)
- b) i) Explain the factors influencing the rate of a reaction.
ii) How does pH play an important role in everyday life?
- 35) a) i) What is transpiration? Give the importance of transpiration.
ii) What is cohesion?
(OR)
- b) i) With a neat labelled diagram. Explain the structure of neuron.
ii) What do you understand the term phenotype and genotype?
