



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)  $340 \text{ m/s}$
  - 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 a  $^{12}\text{C}$  atom
  - b) Mass of hydrogen atom
  - c)  $1/12$ th of the mass of a  $^{12}\text{C}$  atom
  - d) Mass of  $^{16}\text{O}$  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.

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## 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  $\text{CO}_2$  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?