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Register No. 102580

## QUARTERLY EXAMINATION - 2024

Time : 3.00 Hours

SCIENCE

Marks : 75

## PART A

## I. Choose the best answer

12x1 = 12

1. One kilogram force equals to  
a) 9.8 dyne      b)  $9.8 \times 10^6 \text{N}$       c)  $98 \times 10^4$  dyne      d) 980 dyne
- 2) To project the rockets, which of the following principles is / are required?  
a) Newtons third law of motion      b) Newtons law of Gravitation  
c) Law of conservation of linear momentum      e) both a and c
- 3 The eye defect presbyopia can be corrected by .....  
a) convex lens b) concave lens      c) convex mirror      d) Bifocal lenses
4. 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)  $8.31 \text{ J mol}^{-1}\text{k}^{-1}$
5. Which of the following is triatomic molecule ?  
a) Glucose      b) Helium      c) carbon dioxide      d) Hydrogen
6. The basis of modern periodic law is .....  
a) Atomic number      b) Atomic Mass      c) Isotopic Mass      d) Number of Neutrons
7. Which of the following is the 'Universal Solvent'  
a) Acetone      b) Benzene      c) water      d) Alcohol
8. A solution was prepared by dissolving 25g of sugar in 100 gram of water. The mass percentage of solute is .....  
a) 20%      b) 10%      c) 25%      d) 2%
9. Which is formed during anaerobic respiration  
a) Carbohydrate      b) Ethyl Alcohol      c) Acetyl Chloride      d) Pyruvate
10. Which of the following has "Incomplete four chambered heart"?  
a) fishes      b) amphibians      c) reptiles      d) aves
11. Avena coleoptile test was conducted by .....  
a) Darwin      b) N. smith      c) Paal      d) F.W.Went
12. The plant, which propagates with the help of its leaves is .....  
a) Onion      b) Neem      c) Ginger      d) Bryophyllum

## PART B

## II. Write answers for any seven of the followings (Question No 22 is compulsory)

7x2=14

13. How does an astronaut float in a space shuttle ?
14. State : Snell's Law?
15. What are the effects of (i) Temperature (ii) Pressure on the solubility of  $\text{CO}_2$  in water?
16. Fill in the blanks  
a) The atomicity of phosphorous is .....      b) The Number of Neutrons present in  ${}_{20}\text{Ca}^{40}$  is .....
17. Match the followings
 

1. Galvanisation	-	Silver tin amalgam
2. Dental filling	-	Noble gas elements
3. Group 18 elements	-	Heating in the absence of Air
4. Calcination	-	Coating with Zn
18. Why should the light dependent reaction occur before the light independent reaction?
19. Write dental formula of Rabbit ?
20. Who discovered Rh factor ? Why do it so call?
21. Draw the structure of NEURON label the following parts  
a) Dendrites b) Axon c) Myelin Sheath d) Nodes of Ranvier

22. If the earth shrinks to 50% of its real radius, its mass remaining the same, what will be the weight of a body on the earth?

### PART C

Write answers for any seven of the followings (Question 32 is compulsory)

7x4=28

23. a) State 'Joules Law' of heating  
b) Calculate the current and the resistance of a 100 W, 200v electric bulb in a electric circuit?
24. a) State Boyles Law  
b) If you keep ice at 0°C and water at 0°C in either of your hands, in which hand you will feel more chillness why?
25. a) Define : Volume percentage  
b) Write chemical formula of the followings i) Blue vitriol ii) Epsom salt
26. a) What is RUST? Give the equation for formation of Rust?  
b) State two conditions necessary for Rusting of iron?
27. a) Distinguish : Monohybrid cross Vs Dihybrid cross (b) What are allosomes?
28. a) What is "Colostrum"?  
b) How does corpus Luteum form? Name the Hormone secreted by corpus luteum?
29. a) Bring out any two physiological activities of "Abscisic Acid"?  
b) Name the Hormones refered as "personality Hormones" why?
30. a) Write one function for each of the following parts present in the Human Brain  
i) Pons ii) Corpora quadrigemina  
b) Our body contains a large number of cells 'L' which are the longest cells in the body. There is a gap 'O' between two 'L' cells. Identify and name 'L' and 'O'?
31. a) Distinguish : Systole Vs Diastole b) What are Okazaki fragments?
32. a) 1.5g of solute is dissolved in 15g of water to form a saturated solution at 298k. Find out the solubility of the solute at the temperature?  
b) A is metal. It belongs to the Boron family in the modern periodic table. It is one of the best reducing agent so, it reduces the iron oxide in to iron. Metal A is used in the manufacture of cooking vessel. Identify 'A'. Write the chemical equation for reducing character.

### PART D

3x7=21

IV. Write Answers for the followings

33. a) List any three properties of light?  
b) Differentiate the eye defects Myopia Vs Hyper metropia (two points only)  
c) Power of a lens is -4D calculate its focal length  
(or)  
a) What is meant by electric current ?  
b) Which Instrument is used to measure the electric current?  
c) How should it be connected in a circuit?  
d) Define : Calorie
34. a) Derive the relationship between relative molecular mass and vapour density  
b) Calculate the number of water molecules present in one drop of water which weighs 0.18g  
(or)  
a) Along with cryolite and alumina another substance is added to the electrolyte mixture. name the substance and give one reason for the addition?  
b) Differentiate : Hygroscopic substances, deliquescence substances
35. a) How is the structure of DNA organised?  
b) What is the Biological significance of DNA  
(or)  
a) Enumerate 3 functions of Blood ?  
b) Explain any 2 parasitic adaptations of leeches?  
c) Draw and label the structure of oxysomes?