

QUARTERLY EXAMINATION - 2024

10. Std

Time : 3.00 Hours

SCIENCE

Reg.No

MARKS: 75

Instructions :

1. Write clearly and legibly without mistakes and overwriting utilising the maximum time allotted for the exam.
2. Answer should be in your own style without changing the main core concept.
3. Use only black or blue ink pen to write the exam.

I Choose the correct answer :

12x1=12

1. One kilogram force equals to
a) 9.8 dyne b) 9.8×10^4 N c) 98×10^4 dyne d) 980 dyne
2. The value of universal gas constant
a) $3.81 \text{ Jmol}^{-1} \text{ K}^{-1}$ b) $8.03 \text{ Jmol}^{-1} \text{ K}^{-1}$ c) $1.38 \text{ Jmol}^{-1} \text{ K}^{-1}$ d) $8.31 \text{ Jmol}^{-1} \text{ K}^{-1}$
3. Kilowatt hour is the unit of
a) resistivity b) Conductivity c) Electrical energy d) Electrical power
4. 1 mole of any substance contains Molecules.
a) 6.023×10^{23} b) 6.023×10^{-23} c) 3.0115×10^{23} d) 12.046×10^{23}
5. Which of the following have inert gases 2 electrons in the outermost shell.
a) He b) Ne c) Ar d) Kr
6. When pressure is increased at constant temperature the solubility of gases in liquid.....
a) No change b) increases c) decreases d) no reaction
7. Which is formed during anaerobic respiration
a) Carbohydrate b) Ethyl alcohol c) Acetyl CoA d) Pyruvate
8. The wall of human heart is made of
a) Endocardium b) Epicardium c) Myocardium d) All of the above
9. Nerve cells do not possess
a) neurilenma b) Sarcolenima c) axon d) dendrites
10. Which organ act as both exocrine gland as well as endocrine gland
a) Pancreas b) Kidney c) Liver d) Lungs
11. Which one of the following is an IUCD.
a) Copper.T b) Oral pills c) Diaphragm d) Tubectomy
12. The region of the chromosome where the spindle fibers get attached during cell division.
a) Chromomere b) Centrosome c) Centromere d) Chromonema

II Answer any 7 question. Question no: 22 Compulsory.

7 x 2 = 14

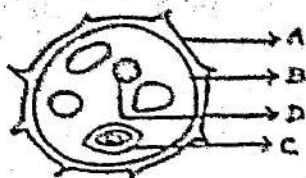
13. State Rayleigh's law of scattering
14. Distinguish between linear, areal or superficial expansion.
15. Why is tungsten metal used in bulbs, but not in fuse wires?
16. What is rust? Give the equation for formation of rust.
17. Why is the teeth of rabbit called heterodont?

18. Match it:

- | | | |
|-----------------------|---|-------------------|
| a) Symplastic pathway | - | Leaf |
| B) Transpiration | - | Plasmodesmata |
| c) Osmosis | - | Pressure in Xylem |
| d) Root pressure | - | Pressure gradient |

19. Why are thyroid hormones referred as personality hormone?

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



21. What do you understand by the term phenotype and genotype?

22. 3.5 litres of ethanol is present in 15 liters of aqueous solution of ethanol. Calculate volume percent of ethanol solution.

III Answer any 7 Question: Question no:32 Compulsory.

7 X 4 = 28

23. What is universal law? Write any 2 applications

24. Differentiate the eye defects: Myopia and Hypermetropia

25. Calculate the % of each element in calcium carbonate:
(Atomic mass: C-12, O-16, Ca - 40)

26. a) Identify the bond between H and F in HF molecule

b) What property forms the basis of identification?

c) How does the property vary in periods and in groups?

27. a) What is collateral vascular bundle?

b) Where does the carbon that is used in photosynthesis come from?

c) What is the common step in aerobic and anaerobic pathway?

28. How does locomotion take place in leech?

29. State whether **True or False**. If **false** write the correct statement

a) The phloem is responsible for the translocation of food

b) When guard cells lose water the stoma opens

c) What is cohesion?

30. a) What are the structures involved in the protection of brain?

b) Define reflex arc

31. What is colostrum? How is milk production hormonally regulated?

32. The resistance of a wire of length 10 m is 2 ohm. If the area of cross section of the wire $2 \times 10^{-7} \text{ m}^2$, determine its (i) resistivity (ii) Conductance.

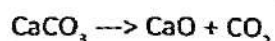
IV Answer very briefly:

3 X 7 = 21

33. a) Deduce the equation of a force using Newton's second law of motion **(OR)**

b) Derive the ideal gas equation.

34. a) Calcium carbonate is decomposed on heating in the following reaction.



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? **(OR)**

b) Write notes On various factors affecting solubility.

35. a) i) Name the gaseous plant hormone. Describe its three different actions in plants.

ii) Which hormone is known as stress hormone in plants? Why?

iii) What is Botting? **(OR)**

b) What is the structure of DNA organized? What is the biological significance of DNA?

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