I. Choose the best answer(12x1=12)

- 1. Mass of the Earth is
- a) 5.672×10^{24} kg b) 5.972×10^{-24} kg c) 5.972×10^{24} kg d) 5.872×10^{-24} kg
- 2. The spectral lines having frequency equal to the incident ray frequency called a) Antistokes lines b) stokes lines c) Raman lines d) Rayleigh line
- 3. αL is _____a. Change in length b. Change in temperature c. Coefficient of linear expansion. d. Original length
- 4. Current is less as effective resistance is more in_____a) series b) parallel c) resistance d) both a,b
- 5. Formula for Sucrose a. $C_6H_{12}O_6$ b. $C_{12}H_{12}O_6$ c. $C_{12}H_{22}O_{11}$ d. $C_{12}H_{22}O_{12}$
- 6. Fe₂O₃ + 3CO \rightarrow 2 Fe + 3CO₂, temp maintained here is a. 200°C b. 300°C c. 400°C d. 600°C
- 7. There are ____different types of vascular bundles
- a. two b.three c.four d.five
- 8. AB blood group was recognized bya) Steini b) Decastello c) Wiener d) both a,b
- 9. Polyuria ,deficiency by the harmone a) FSH b) ADH c) GTH d) TSH

10. ____used to induce desirable mutations in crop plants

(a) Atomita 137 (b) Cobalt-80 (c) Caesium-137 (d) Atomita 132

- 11. World Anti-Tobacco Day a) May 1st b) May 11th c) May 21st d) May 31st
- 12. Kallanai Dam, also known as _____

a) Grand Acicula b) Grand Anicut c) Grand amicus d) Grand Anitagm

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

- 13. Define "g".
- 14. Define,"Colloid".
- 15. Define "Law of volume".
- 16. Give Symbol and its use of Rheostat component of a circuit
- 17. What is the function of MCB ?
- 18. Tabulate any two ores of iron with formulae.
- 19. Write a few sentences about our Indian scientist C.N.R. Rao
- 20. Imbibition is a type of diffusion-Explain with eg.
- 21. What do you mean by CSF?.
- 22. Give any two GENERAL CHARACTERISTICS OF ORGANIC COMPOUNDS

III. Answer any 7 (Q.No.32 is compulsory) (7x4=28)

- 23. a. Define the terms 'Unit force' and Gravitational unit of force '
 - b. Calculate the resistance of a conductor through which a current of 2 A passes, when the potential difference between its ends is 30 V.
- 24 .a. A beam of light passing through a diverging lens of focal length 0.3m appear to be focused at a distance 0.2m behind the lens. Find the position of object
 - b. A container whose capacity is 70 ml is filled with a liquid up to 50 ml. Then, the liquid in the container is heated. Initially, the level of the liquid falls from 50 ml to 48.5 ml Then we heat ,level of the liquid rises to 51.2 ml. Find the apparent and real expansion
- 25. a. Calculate % of S in H₂SO₄
 - b. Explain Froth floatation process with diagram.
- 26. a, 3.5 litres of ethanol is present in 15 litres of aqueous solution of ethanol. Calculate volume percent of ethanol solution
 - b. Calculate the pH of a solution in which the concentration of the hydrogen ions is 1.0×10^{-8} mol litre⁻¹.
- 27 .a. Explain terms Amphivasal and Amphicribral with egs.b. Calvin cycle-Explain
- 28 .The granulocytes are of three types-Explain
- 29. a. Rh factor, Rh antibodies -Explain b. Two Functions of Lymph

- 30. a. Voluntary and involuntary actions-Differb. Medullated and non-medullated nerve-Differ
- 31. a. Physiological effects of cytokinins (any two)b. Physiological effects of gibberellins (any two)
- 32. Explain the Decarboxylation process with equations.

IV. Answer all (3x7=21)

33. a) Explain the equation of state.

b) Give the Merits of a LED bulb (any 3)

(OR)

- a. Explain the Categories of sound waves based on their frequencies
- b. Explain the Components of a nuclear reactors.
- 34.. a. Show that 2 × vapour density = Relative molecular mass of a gasb. Noble gases show no tendency to accept electrons-why?(OR)
 - a. Give the Methods of preventing corrosion
 - b. Expand 'TFM".

c. How to identify saturated and unsaturated compounds?

- 35 Describe the Structure of Human Heart with labelled diagram. (OR)
 - a. Explain the Process of Fertilization with diagram.

b. Enumerate the Functions of thyroid hormones(any two)

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