QP Code: U25DIS007

Reg. No : .....
Name : .....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

I SEMESTER (FYUGP) DEGREE EXAMINATIONS, NOVEMBER 2025
(Improvement/Supplementary)
CHE1MN103 : Basic Inorganic & Green Chemistry
2024 Admission Only
(Credits: 4)

Time: 2 Hours **Maximum Marks: 70**

Section A

*Answer **all**. Each question carries **3** Marks.* ***(Ceiling: 24 Marks)***

1. State Aufbau principle.
2. Write down the electronic configuration of Chromium atom.
3. State Heisenberg's uncertainty principle.
4. State Zeeman effect.
5. Explain why ionization enthalpy increases across a period.
6. What is the difference between Mendeleev's and Moseley's periodic law?
7. Define accuracy and precision in analytical chemistry.
8. Compare the advantages of the double burette method of titration over the conventional titration.
9. Explain how water can be used as a solvent for organic reactions.
10. What are the alternative sources of energy in Green Chemistry?

Section B

*Answer **all**. Each question carries **6** Marks.* ***(Ceiling: 36 Marks)***

11. Differentiate between ionic and covalent bond with example.
12. Explain *sp* and sp^3d hybridisation with example.
13. Compare the trends in ionization enthalpy between alkali metals and halogens, and explain why these differences occur.
14. Analyze how the inert pair effect influences the chemical properties of elements in group 13 compared to group 14.
15. Differentiate between iodometry and iodimetry.

Turn Over

16. Calculate the mole fractions of the components in a mixture containing 115 g of Ethanol, 120 g of Acetic acid and 9 g of water.

17. Apply the principle of double burette method of titration in NaOH against HCl.

18. Compare and contrast traditional chemical synthesis with Green Chemistry principles, and justify the role of Green Chemistry in ensuring the sustainability of life on Earth.

Section C

*Answer **any one**.* ***(1x10=10marks)***

19. Draw the MO diagram of CO molecule using electronic configuration and calculate its bond order .

20. Sketch and explain the neutralization titration curves for various acid-base titrations and predict the suitable indicator for each type.

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