D 12618 (Pages : 2) Name......................................

Reg. No................................

FIRST SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

Chemistry

CHE 1C 01—GENERAL CHEMISTRY

(2021 Admissions)

Time : Two Hours Maximum : 60 Marks

Section A

Answer at least **eight** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 24.

1. What is meant by microanalysis ? Give two examples.

2. Calculate the momentum of a particle which has de Broglie wavelength of 0.2 nm.

   $[h = 6.6 \times 10^{-34} \text{ Js}]$

3. Mention shapes of : (i) XeF_2 molecule ; and (ii) SF_6 molecule.

4. Write all possible values of 1 if $n = 4$.

5. Draw structure of porphine.

6. What are π-mesons ?

7. Explain term nuclear chain reaction.

8. What is meant by radioactive tracer ?

9. Name two iron containing enzyme.

10. Name a vitamin known to contain metal. What is the metal ?

11. Name two trace elements in biochemistry.

12. What is called metal activated enzyme ? Give an example.

$(8 \times 3 = 24 \text{ marks})$

Turn over

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Section B

Answer at least **five** *questions.*

Each question carries 5 *marks.*

All questions can be attended.

Overall Ceiling 25.

13. Distinguish primary and secondary as applied to volumetry with example.

14. Explain function of complexometric indicators.

15. Explain shapes of SO_4^{2-} and NH_4^+ on basis of VSEPR theory.

16. Distinguish between bonding and antibonding molecular orbitals.

17. State and illustrate group displacement law.

18. $^{14}C/^{12}C$ ratio in a piece of wood is 12 % that of atmosphere. Calculate the age of wood. Half life of ^{14}C = 5760 years.

19. What structural changes do occur when haemoglobin carries O_2 and when it detaches ?

$(5 \times 5 = 25$ marks$)$

Section C

Answer any **one** *question.*

The question carries 11 *marks.*

20. (a) Briefly explain principles of solubility product and common ion effect in separation of cations in qualitative analysis ; (b) A solution contains Cu^{2+} and Ba^{2+}. How would you separate ions and identify them.

21. What are quantum numbers ? Discuss the significance of each quantum number.

$(1 \times 11 = 11$ marks$)$