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.
   [$h = 6.6 \times 10^{-34}$ 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 × 3 = 24 marks)

Turn over

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 × 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 × 11 = 11 marks)