E 3716

00003716

Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2022

Fourth Semester

Vocational Course—INSTRUMENTAL METHODS OF CHEMICAL ANALYSIS-I

(For B.Sc. Chemistry (Vocational) Model-II)

[2013—2016 Admissions]

Time : Three Hours Maximum Marks : 60

Part A

Answer **all** *questions.*
Each question carries 1 *mark.*

1. What is the principle of calibration ?
2. What are transducers ?
3. What is Beer-Lambert law ?
4. What is the best solvent for IR spectral analysis ? Why ?
5. What are nebulizers ?
6. What is the disadvantage of hollow cathode lamp ?
7. What is the use of Gel permeation chromatography ?
8. What are ion selective electrodes ?

(8 × 1 = 8)

Part B

Answer any **six** *questions.*
Each question carries 2 *marks.*

9. What are the methods to enhance the S/N ratio ?
10. What are the characteristic of transducers ?
11. What happens when electromagnetic radiation interacts with matter ?
12. What is ND-IR used for ?

Turn over

13. Discuss the hazardous in samplings for atomic emision spectroscopy.

14. Discuss the advantages and disadvantages of partition chromatography.

15. What is the advantage of using molecular sieves in chromatography ?

16. What is primary coulometric titration ?

17. What is the basic principle of polarography ?

18. What are the main advantages of potentiometric titration ?

(6 × 2 = 12)

Part C

Answer any **four** *questions.*
Each question carries 4 *marks.*

19. Distinguish between zero order and first order instruments.

20. What is the difference between single beam and double beam spectrophotometer ?

21. Discuss the instrumentation of atomic absorption spectroscopy.

22. Discuss the types of detectors used in gas chromatography.

23. Discuss the various types of conductometric titrations.

24. Briefly explain the potentiometric titration method. What are its applications ?

(4 × 4 = 16)

Part D

Answer any **two** *questions.*
Each question carries 12 *marks.*

25. Explain the classification of various types of instruments.

26. Explain the instrumentation, sampling and applications of UV-Visible spectroscopy.

27. Explain the principle, instrumentation and applications of molecular fluorescence spectroscopy.

28. Explain the principle, instrumentation, types of columns and applications of gas chromatography.

(2 × 12 = 24)