2024/FYUG/EVEN/SEM/
CHMSEC–151T/086

FYUG Even Semester Exam., 2024

CHEMISTRY

(2nd Semester)

Course No. : CHMSEC–151T

(Basic Analytical Chemistry)

Full Marks : 50
Pass Marks : 20

Time : 2 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer any *fifteen* questions : 1×15=15

1. What is analytical chemistry?

2. Define the term 'systematic error'.

3. What is the full form of TLC?

4. Choose the correct answer :
   Which one of the following is not an analytical technique?
   (a) Titration
   (b) Gravimetric analysis
   (c) Stock analysis
   (d) Spectroscopy

5. Define pH.

6. What do you mean by an indicator?

7. Define pure water.

8. Give one example of chelating agent.

9. Define cosmetic.

10. What are the basic constituents of talcum powder?

11. Write different types of cosmetics.

12. Give one example of antiperspirants.

13. What are the basic macronutrients present in food?

14. What are the adulterants present in coffee powder?

15. What are the functions of preservatives?

16. What is the full form of FSSAI?

17. What will happen to aquatic life when DO (dissolved oxygen) level of water is very high?

18. What is the pH of neutral, acidic and alkaline water?

19. Name two reagents mostly used in complexometric titration.

20. What are the macronutrients present in soil?

SECTION—B

Answer any *five* questions : 2×5=10

21. Distinguish between qualitative and quantitative chemical analysis.

22. Explain the difference between accuracy and precision.

23. Explain how pH of the soil can be determined.

24. What are the major reasons for contamination of surface water?

25. What are the major components present in cosmetic products?

26. What is the use of emulsifiers in cosmetics? Give one example of emulsifier.

27. Give one example of natural and chemical preservative each and mention their uses.

28. How will you detect adulteration in asafoetida?

29. What are the factors that affect the DO level of water?

30. Give the principle of flame photometry.

SECTION—C

Answer any *five* questions : 5×5=25

31. Illustrate the procedure for the separation of a mixture of polar and non-polar compounds by TLC.

32. What are the different types of errors that can occur in analytical measurement? Explain how these errors can be minimized. 3+2=5

33. Explain the basic principle of complexometric titration. What do you mean by chelation? 3+2=5

34. What are the adverse effects of contaminated water on human body? Mention two methods to purify drinking water. 3+2=5

35. Explain the procedure for the determination of Zn and Al in cosmetic product.

36. How can boric acid be determined by chemical method? Explain.

37. Write the basic properties of a preservative. How can salt vinegar and sugar be used as preservative? 2+3=5

38. Describe procedures to determine the adulterant present in *(a)* turmeric powder and *(b)* chilli powder. 2½+2½=5

39. Give the procedure to determine the dissolved oxygen in water.

40. Illustrate how calcium and magnesium can be determined by complexometric titration. 2½+2½=5

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