2023/FYUG/ODD/SEM/
CHMIDC-101T/096

**FYUG Odd Semester Exam., 2023**

**( Held in 2024 )**

# CHEMISTRY

**( 1st Semester )**

Course No. : CHMIDC-101T

**( Fundamentals of Chemistry—I )**

*Full Marks* : 70
*Pass Marks* : 28

*Time* : 3 hours

*The figures in the margin indicate full marks for the questions*



## SECTION—A

Answer *twenty* questions, selecting *four* from each Unit : 1×20=20

### UNIT—I

1. What are vitamins?

2. What disease is caused by iodine deficiency?

3. Write one example of fat-soluble vitamin.

4. Which metal is present in vitamin B12?

5. Which disease is caused by vitamin A?

## UNIT—II

6. What is enzyme?

7. What are cofactors?

8. What is the metal present in blood?

9. What is denaturation of protein?

10. How many N-atoms are included in the structure of haemoglobin?



## UNIT—III

11. What do you mean by nutrients?

12. What are preservatives?

13. Give an example of artificial sweetener other than sugar.



( Continued )

14. Write the full forms of ISI and PFA.

15. Mention the major objective of food preservation.

UNIT—IV

16. What are flavouring agents?

17. What do you mean by food additives?

18. Give an example of non-permitted colour.

19. Why do you think the use of artificial food colour is harmful?

20. What is meant by adulterants?



UNIT—V

21. Draw the structure of sodium lauryl suiphate.

22. What is biodegradable polymer?

23. What is PVC?

24. What are natural fibres?

25. Mention the use of biofuel.

## SECTION—B

Answer *five* questions, selecting *one* from each Unit : 2×5=10

### UNIT—I

**26.** Write the need of vitamins in our body.

**27.** Write two examples each of *(a)* water-soluble and *(b)* fat-soluble vitamins.

### UNIT—II

**28.** Explain the catalytic action of enzyme.

**29.** What is the role of prosthetic group in enzyme action?



### UNIT—III

**30.** Discuss different methods of food preservation.

**31.** Discuss the changes occur in the porphyrin when $O_2$ binds with metal.

### UNIT—IV

**32.** Why are artificial sweeteners better than sugar?

**33.** Discuss the side effects of adding excessive food colour in food.

## UNIT—V

**34.** Discuss the preparation of biofuel.

**35.** Biodegradable polymers are better than plastics. Justify the above statement in reference to environmental safety.

## SECTION—C

Answer *five* questions, selecting *one* from each Unit : 8×5=40

## UNIT—I

**36.** Write down the characteristic sources and deficiency diseases caused by vitamin D, vitamin K, vitamin C and vitamin B complex.



**37.** Discuss the major role of minerals in human life essential for healthy living.

## UNIT—II

**38.** *(a)* Discuss the lock and key mechanism of enzyme action. 5

*(b)* Write a note on enzyme cofactor. 3

39. (a) Explain specificity of enzyme action taking suitable examples. 5

(b) Discuss the effects of pH and temperature in enzyme action. 3

## UNIT—III

40. Discuss the method of transportation of $O_2$ via blood to the tissues and removal of $CO_2$ from the body.

41. (a) Discuss the traditional method of food preservation and its utility in modern-day life style. 4

(b) What are the roles of ISI, MPO, PFA and FSSAI in monitoring food standards? 4



## UNIT—IV

42. Discuss in brief the different food additives and their roles in the conservation of food quality.

43. Why is quality control an important factor in food industry? Why is quality check monitoring needed in terms of flavouring and colouring of foods?

## UNIT—V

**44.** Discuss the mechanism of cleansing action of soap via micelle formation.

**45.** *(a)* What are homopolymers and copolymers? Describe the classification of polymers based on their structures. 2+3=5

*(b)* Differentiate between rubbers and plastics based on intermolecular forces. 3

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