

**2024/FYUG/EVEN/SEM/
CHMIDC-151T/087**

FYUG Even Semester Exam., 2024

CHEMISTRY

(2nd Semester)

Course No. : CHMIDC-151T

(Indian Chemistry Through the Ages)

Full Marks : 70

Pass Marks : 28

Time : 3 hours

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

SECTION—A

Answer any *twenty* questions :

1×20=20

- 1. Mention two important properties of metals.**
- 2. Define boiling point.**
- 3. Define coordinate covalent bonding with example.**
- 4. What is meant by global warming?**

(2)

5. Write the scientific notations of the following :

(a) 6000×10^2

(b) 0.0000423

6. What do you mean by alchemy?

7. Who is considered as the father of Rasashastra?

8. What is meant by Iatrochemistry?

9. What is the name of the book written by Acharya Nagarjuna on chemistry?

10. Mention one important contribution of 'Siddha Nityanatha' in ancient chemistry.

11. Name the primary constituent of glass.

12. Give examples of coinage metals.

13. Mention the uses of ink.

14. What is meant by metallurgy?

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(Continued)

(3)

15. Mention the characteristic of a good cosmetic.

16. Who is considered as the father of Indian chemistry?

17. Which pharmaceutical company was founded by Acharya P. C. Ray?

18. Name the book on chemistry written by Acharya P. C. Ray.

19. Who was the first Indian to receive Ph.D. degree in chemistry?

20. Name an important discovery made by Acharya Prafulla Chandra Ray.

21. Who is known for interpreting the genetic code and understanding protein synthesis?

22. Name the prestigious prize award annually to Indian scientists, named after a renowned chemist.

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(Turn Over)

(4)

23. What research area earned Venkatraman Ramakrishnan the Nobel Prize in chemistry?
24. What significant biochemical compounds did Yellapragada Subbarow discover?
25. Name two medical ailments for which Dr. Asima Chatterjee formulated medications.

SECTION—B

Answer any five questions :

2×5=10

26. Draw the Lewis dot structure of the following :
- (a) CH_4
- (b) SO_4^{2-}
27. Differentiate between covalent bonding and ionic bonding.
28. What are the different categories of chemical substances in Rasashastra?
29. What do you mean by Navaratnas? Name them.

(5)

30. What are dyeing agents? Give examples.
31. What are perfumes? Mention their uses.
32. Discovery of which organic and inorganic nitrites popularized by Acharya P. C. Ray to be regarded as 'Master of Nitrites'?
33. What is the significance of discovery of nitrites? Mention a few applications.
34. What is the field of expertise of Prof. C. N. R. Rao? What are some practical applications of his research?
35. How did Darshan Ranganathan's research impact the field of supramolecular chemistry?

SECTION—C

Answer any five questions :

8×5=40

36. What is acid rain? Discuss the causes and impact of acid rain.
37. What is meant by greenhouse effect? Describe the causes and impact of greenhouse effect. How can it be minimized?

2+(2+2)+2=8

(6)

38. Write brief notes on the following : $4 \times 2 = 8$

- (a) Mūsā Yantra used in ancient chemistry
- (b) Kosthi Yantra

39. Write short notes on the following : $4 \times 2 = 8$

- (a) Pātana Yantra
- (b) Dhūpa Yantra

40. What are soaps? Name different types of surfactants. Discuss the cleansing action of soaps. $2+2+4=8$

41. Distinguish between the following :

- (a) Iron and Steel
- (b) Copper and Bronze

Mention the advantages of alloys over the corresponding metals. $3+3+2=8$

42. Discuss Ray's classification of five stages in development of chemistry in India. Mention three major honours and recognitions received by Prof. P. C. Ray. $5+3=8$

(7)

43. Briefly describe the major contribution of Acharya P. C. Ray in chemical research.

44. Discuss the research contributions of Prof. Har Gobind Khorana to the field of molecular biology, emphasizing the significance and impacts of his findings.

45. Discuss Dr. Kamala Sohoni's multi-disciplinary research efforts and their impact on India's scientific landscape and societal welfare.
