

**2024/FYUG/ODD/SEM/
CHMIDC-201T/193**

FYUG Odd Semester Exam., 2024

CHEMISTRY

◦ **(3rd Semester)**

Course No. : CHMIDC-201T

(Heritage of Indian Metallurgy)

Full Marks : 70

Pass Marks : 28

Time : 3 hours

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

UNIT—I

1. Answer any *four* from the following as directed : 1×4=4

(a) What is metallurgy?

◦ (b) Name one ore of aluminium.

(c) What was the first evidence of metal in the Indian subcontinent?

(d) Which metal is known as the king of metals?

(e) Bronze is an alloy of _____ and _____.

(Fill in the blanks)

(2)

2. Why all ores are minerals but all minerals are not ore? 2

OR

3. What are the seven metals of antiquity? 2

4. (a) Briefly explain the importance of metals in human civilization. 3

- (b) What are the two important sources to learn the history of Indian metallurgy? How are these sources helpful to give information about the early evidence of metal in the Indian subcontinent? 1+4=5

OR

5. (a) Define alloy. 1

- (b) What is the need of making alloy? 1

- (c) Write the compositions and uses of any *two* of the following alloys : 3+3=6

(i) Nichrome

(ii) Stainless steel

(iii) Brass

UNIT—II

6. Answer any *four* from the following as directed : 1×4=4

- (a) What was the first metal found in the Harappan Civilization?

(b) Lost wax technique was used for metal/wood/clay sculpture.

(Choose the correct one)

(c) When did copper age begin in India?

(d) What is the characteristic of bronze age?

(e) What is the strongest bronze alloy?

7. What were the artifacts found in Harappa? 2

OR

8. What is Bronze age in Indian History? Why is it called so? 1+1=2

9. Briefly explain the metallurgical advancement in the Harappan Civilization. 8

OR

10. (a) What are the different types of Bronze alloy? Write the applications of bronze. 2+3=5

(b) Write a short note on 'lost-wax technique for metal sculpture'. 3

UNIT—III

11. Answer any *four* from the following : 1×4=4

(a) What is the terminology used for 'study of coins'?

(b) Name the type of coins first documented in India.

(c) What was the smallest standard weight used in the 'Indus Valley Civilization'?

(d) What was the primary material used for coins during the Gupta period?

(e) Who is the issuing authority of currency in India today?

12. What are Punch-marked coins? What metals were commonly used to make Punch-marked coins in ancient India? 1+1=2

OR

13. What is the casting technique of coins? 2

14. (a) Who issued the first Ahom coin? Mention the scripts used in these coins. What materials were used in these coins? 1+1+1=3

(b) What does the term 'svarna' mean in the context of ancient Indian coins? Which ancient Indian dynasty was known for issuing the first gold coins? 1+1=2

(c) Which ancient Indian region is known for the earliest use of cast copper coins? How did cast copper coins facilitate trade in ancient India? 1+2=3

OR

15. (a) Which ancient Indian text mentions the use of Karshapanas as currency? Mention the different purposes for which Karshapanas were used in ancient India. 1+3=4
- (b) What is the copper Hoard culture? Name some notable archaeological sites associated with copper Hoard culture. How do copper Hoard artefacts contribute to our understanding of ancient Indian society? 1+1+2=4

UNIT—IV

16. Answer any *four* from the following : 1×4=4
- (a) Which civilization first discovered iron?
- (b) What is smelter process?
- (c) Is wootz steel strong?
- (d) What is wrought iron?
- (e) Where is Kodachadri located?

17. What was the civilization around the Ganga river? 2

OR

18. How can iron be made more rust resistant? 2

19. (a) Discuss the production process of wrought iron. 4
- (b) What are the advantages of wrought iron? 2
- (c) Give four applications of wrought iron. 2

OR

20. (a) What is wootz steel? 1
- (b) Explain the production process of wootz steel. 3
- (c) Write a few applications of wootz steel. 2
- (d) What is the role of carbon in stainless steel? 2

UNIT—V

21. Answer any *four* from the following : $1 \times 4 = 4$

- (a) What is the easiest way to extract gold?
- (b) Which process is used to extract silver?
- (c) Name the methods used for the concentration of ores.
- (d) Define slag.
- (e) Name the metal which is commonly used as reducing agent in metallurgical operation.

22. Distinguish between 'calcination' and 'roasting'. 2

OR

23. How do you remove impurities from tin? 2

24. (a) Name any one ore of zinc. 1

(b) Describe the steps involved in the extraction of zinc metal from its ore. 5

(c) Give two applications of zinc metal. 2

OR

25. (a) Explain the process of extraction of gold from its ore. How is the crude gold refined? Give two applications of gold. 3+2+2=7

(b) Which is the chemical solution used to dissolve gold? 1
