

**2024/TDC (CBCS)/EVEN/SEM/  
CHMDSE-601T/309**

**TDC (CBCS) Even Semester Exam., 2024**

**CHEMISTRY**

**( 6th Semester )**

**Course No. : CHMDSE-601T**

**( Inorganic Materials of Industrial Importance )**

**Full Marks : 50**

**Pass Marks : 20**

**Time : 3 hours**

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

**UNIT-I**

**1. Answer any three of the following questions :**

**1×3=3**

(a) What do you mean by non-silicate glasses?

(b) What is the use of photosensitive glass?

(c) Mention one use of carbon nanotube.

(d) What is the role of gypsum in the manufacturing of cement?

**( 24J/912 )**

**( Turn Over )**

2. Answer any one of the following questions : 2
- (a) What are the basic raw materials used for the manufacture of glass?
- (b) What is meant by setting of cement?
3. Answer any one of the following questions : 5
- (a) (i) What are ceramic materials? 1
- (ii) What are the properties of ceramics? 3
- (iii) Write two uses of ceramics. 1
- (b) What is Portland cement? Discuss the general composition of Portland cement. How is cement made coloured? 1+2+2=5

UNIT—II

4. Answer any three of the following questions : 1×3=3
- (a) Give an example of a straight fertilizer.
- (b) What is the role of nitrifying bacteria in the soil?
- (c) Write down the chemical composition of triple superphosphate.
- (d) What are NPK fertilizers?

5. Answer any one of the following questions : 2
- (a) How is ammonium nitrate prepared?
- (b) Give the essential qualities of a good fertilizer.
6. Answer any one of the following questions : 5
- (a) Describe the preparation of calcium ammonium nitrate (CAN). Why is it considered as a good fertilizer? 3+2=5
- (b) (i) How is urea manufactured? 2
- (ii) Explain about different types of potassic fertilizers. 3

UNIT—III

7. Answer any three of the following as directed : 1×3=3
- (a) Give an example of thinner for water-based paint.
- (b) What is pigment?
- (c) What is toner?
- (d) The most common inorganic pigment used in paint is \_\_\_\_\_. (TiO<sub>2</sub> / CaO)
- (Choose the correct option)

8. Answer any one of the following questions : 2

- (a) What is surface coating and why is it necessary?
- (b) Discuss the important characteristics of zinc oxide pigment.

9. Answer any one of the following questions : 5

- (a) What are the requirements of a good paint? Describe the environmental issues associated with paint. 2+3=5
- (b) Describe about metal spraying and anodizing.

#### UNIT—IV

10. Answer any three of the following questions : 1×3=3

- (a) What is photovoltaic cell?
- (b) Write one use of lead-acid battery.
- (c) What is solar cell?
- (d) What is the role of an electrolyte inside the battery?

11. Answer any one of the following questions : 2

- (a) What are primary and secondary batteries?
- (b) How does solid-state battery work?

12. Answer any one of the following questions : 5

- (a) What is the lithium-ion battery? Briefly describe its working principle. 1+4=5
- (b) (i) Write a short note on polymer cell. 3
- (ii) What are the advantages of fuel cells? 2

#### UNIT—V

13. Answer any three of the following as directed : 1×3=3

- (a) What is an alloy?
- (b) Which element has the highest percentage in stainless steel?
- (c) What is annealing?
- (d) Brass is an alloy of \_\_\_\_\_ and \_\_\_\_\_.

(Fill in the blanks)

14. Answer any one of the following questions :A 12

(a) Write about decarburization reaction.

(b) What are the advantages of stainless steel?

15. Answer any one of the following questions : 5

(a) (i) What are the two common classifications of alloy? Give one example of each type. 2

(ii) Write a note on gold alloy. 3

(b) (i) How is silicon removed during the manufacturing of steel? 2

(ii) Discuss the composition and properties of different types of steel. 3

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