

**2024**  
**B.A./B.Sc.**  
**Sixth Semester**  
 DISCIPLINE SPECIFIC ELECTIVE – 4  
**CHEMISTRY**  
*Course Code: CHD 6.21*  
 (Inorganic Materials of Industrial Importance)

Total Mark: 70

Pass Mark: 28

Time: 3 hours

Answer five questions, taking one from each unit.

**UNIT-I**

1. (a) What are glasses? Give physical and chemical properties of a glass. 5  
 (b) Describe the high technology ceramics and state their applications. 5  
 (c) Explain the compositions and uses of borosilicate glasses. 4
2. (a) What are ceramics? Give five basic types of ceramics and mention their main field of use. 5  
 (b) Describe one major method of manufacturing and processing glass. 5  
 (c) Mention composition and some properties of lead glasses. 4

**UNIT-II**

3. (a) What are fertilizers? Briefly explain the different types of fertilizers. Justify the need for fertilizers. 1+3+3=7  
 (b) Citing the example describe the primary and secondary batteries. 4  
 (c) State some of the importance of using mixed fertilizers. 3
4. (a) With the help of a neat diagram, illustrate the working and utilities of lithium batteries. 6  
 (b) Briefly describe the preparation and uses of super phosphate fertilizers. 5  
 (c) State some advantages of using solar cell. 3

### UNIT-III

5. (a) Explain the various types of preliminary treatment needed for surface coating. 5  
(b) Discuss the objectives and uses of electroplating. 5  
(c) What are eco-friendly paints? Mention some benefits of using eco-friendly paints. 4
6. (a) Give the composition, properties, and uses of the following paints: 6  
(i) White lead  
(ii) Lithopone  
(b) Describe the four processes involve in the breaking down of agglomerates of pigment into a primary particle. 4  
(c) Define the following terms: 1×4=4  
(i) Toners  
(ii) Vehicles  
(iii) Thinners  
(iv) Fillers

### UNIT-IV

7. (a) What are alloys? Mention five (5) main purpose of making an alloy. 6  
(b) Discuss two main ingredients and their role in cement. 4  
(c) Write short notes on the following: 2×2=4  
(i) Desulphurization  
(ii) Dephosphorization
8. (a) Give a detail account of the manufacturing process and setting process of cement. 6  
(b) Mention four advantages of using stainless steel. 4  
(c) Write notes on the following: 2×2=4  
(i) Nitriding  
(ii) Carburizing

### UNIT-V

9. (a) With the help of an example explain the catalytic steps involve in industries. 6

- (b) Give a detail account on the process for preparation of RDX and its explosive nature. 4
- (c) Explain the process of catalytic reforming. 4
10. (a) Discuss in detail the general principles involve in catalytic process. State two unique properties of a catalyst. 6
- (b) Explain the origin of explosive properties in organic compounds. 4
- (c) Briefly explain the role/importance of using catalyst in industries. 4
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