

2022
B.A./B.Sc.
Sixth Semester
DISCIPLINE SPECIFIC ELECTIVE – 4
CHEMISTRY
Course Code: CHD 6.21
(Inorganic Materials of Industrial Importance)

Total Mark: 70
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

UNIT-I

1. (a) Discuss the manufacture and processing of glass. 5
(b) Explain the high technology ceramic, also give its application. 5
(c) Compare silicate and non-silicate. 4
2. (a) Explain how cement is manufactured? 4
(b) Write the composition and properties of the following: 3×2=6
(i) Armoured glass (ii) Photosensitive glass
(c) Write a note on the following: 2×2=4
(i) Nanotubes (ii) Fullerenes carbon

UNIT-II

3. (a) Give a detailed process of manufacturing urea fertilizer. 7
(b) Explain the working process of Li-battery. 5
(c) What are secondary batteries? 2
4. (a) Discuss the manufacturing process of superphosphate fertilizers. 7
(b) Explain how the polymers cell works. 4
(c) Differentiate between compound and mixed fertilizers. 3

UNIT-III

5. (a) What is electroplating? Mention its objectives and processes. 1+2+2=5

- (b) Mention the chemical composition, properties, and uses of:
- (i) Lithopone 2½×2=5
- (ii) Titanium dioxide
- (c) What are eco-friendly paints? Mention the benefits of eco-friendly paints. 4
6. (a) What are enamels? Briefly explain the ingredients used in preparation of enamels. 7
- (b) What is anodizing? Give its advantages and uses? 4
- (c) Write a note on fire retardant paints. 3

UNIT-IV

7. (a) With the help of a schematic diagram explain how steel is manufactured. 7
- (b) Give an account of non-ferrous alloys. 7
8. (a) Discuss the properties and composition of different types of steel. 7
- (b) Briefly explain the following:
- (i) Specific properties of elements in alloy
- (ii) Nitriding process for surface treatment 7

UNIT-V

9. (a) Give the main characteristics of catalyst. 3
- (b) What is heterogeneous catalysis? Discuss the mechanism of heterogeneous catalysis. 1+5=6
- (c) Explain phase transfer catalyst in chemistry, give its uses. 5
10. (a) What are explosive materials? Discuss the origin of chemical explosive. 1+4=5
- (b) Write a note on rocket propellant. 3
- (c) Give the preparation and uses of the following compounds:
- (i) Lead azide 2×3=6
- (ii) PETN (iii) RDX