B.Sc. 6th semester (Honours) Examination, 2020 (CBCS)

Subject: Inorganic materials of industrial importance

Paper: DSE-4

Time: 2 Hours **Full Marks: 40**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Answer any *eight* questions from the following: **8 × 5 = 40**

1. Write down the compositions of following types of glasses- (I) Soda lime glass (II) Safety glass (III) Coloured glass, and (IV) Photosensitive glass. Write one use of Borosilicate glass. 5
2. Write down differences between Homogeneous and Heterogeneous Catalysis. What do you mean by deactivation and regeneration of catalysts? 5
3. 'A battery is a series or parallel combination of electrolytic cells'- Comment. Why Nickel-Cadmium batteries are preferred more over Lead-acid batteries in military applications? What is Portland cement? 5
4. Write a short note on 'high-tech' ceramics. Give at least two examples of its applications. 5
5. What is meant by the term 'balanced fertilizer'? How chemical fertilizers are different from bio-fertilizers? Give one example each for chemical and bio-fertilizers. 5
6. Show how $(CH_3)_2CHCH_2CHO$ can be prepared from $(CH_3)_2C=CH_2$ by the hydroformylation process? Write down the role of Rhodium metal in Wilkinson's catalysis. 5
7. What are the reasons of surface coating? Give examples of one emulsion and one emulsifying agent. What is the concept of electro less metallic coating? 5
8. Write a short note on 'Electroplating' with diagrammatic presentation. What is the most common catalyst system used in Ziegler-Natta Catalysis? 5
9. Write the compositions of Wrought Iron, Cast Iron and Steel. What is called Bloom? Give one example of non-ferrous alloy. 5
10. Write down the structure, synthesis and applications of RDX. What is solid state electrolyte battery? 5