



‘সমানো মন্ত্র: সমিতি: সমানী’

**UNIVERSITY OF NORTH BENGAL**

B.Sc. Honours 5th Semester Examination, 2023

**DSE-P2-CHEMISTRY**

**INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.*

1. Answer any **five** questions from the following: 1×5 = 5
- (a) Give an example of Boron-fertilizer.
  - (b) What are lake pigment?
  - (c) What is CPVC?
  - (d) What is annealing?
  - (e) What do you mean by catalyst promoter?
  - (f) Give two examples of non-ferrous alloy.
  - (g) Write the composition of Brass.
  - (h) Give the chemical formula of Zeolite.
2. Answer any **three** questions from the following: 5×3 = 15
- (a) (i) What are the composition of paint? 2
  - (a) (ii) What are the properties of an ideal paint? 3
  - (b) (i) What are the advantages and disadvantages of fuel cell? 2
  - (b) (ii) Explain the working principle of lead-acid battery. 3
  - (c) (i) What is catalyst inhibitor and poisons? 2
  - (c) (ii) What are the characteristics of a catalyst? Name one industrial catalyst. 3
  - (d) (i) What is armoured Glass? 2
  - (d) (ii) What is plastic paint? 1
  - (d) (iii) What are the properties of ceramics? 2
  - (e) (i) What do you mean by boronizing? 2
  - (e) (ii) Write some advantages of lithium ion battery. 2
  - (e) (iii) How glass is made coloured? 1

3. Answer any **two** questions from the following: 10×2 = 20
- (a) (i) Write briefly about polyphosphate fertilizer. 3  
 (ii) What is superphosphate? 2  
 (iii) How oil paint is different from water based paint? 2  
 (iv) What are the applications of high technology ceramics? 3
- (b) (i) How fibre glass is different from safety glass? 2  
 (ii) Write down the composition, properties & uses of: 1  $\frac{1}{2}$  + 1  $\frac{1}{2}$  + 1  $\frac{1}{2}$   
 (I) Borosilicate glass,  
 (II) Aluminosilicate glass and  
 (III) Lead glass.  
 (iii) What is vitrification of glass? 1  
 (iv) Write note on polymer cell. 2  $\frac{1}{2}$
- (c) (i) Describe the mechanism of a heterogeneous catalysis. 3  
 (ii) What are the defects occurred during heat treatment of steel? 2  
 (iii) Write a note on the additives used in paints. 2  
 (iv) Write about the setting of cement. 3
- (d) Write short notes on the following: (any **four**) 2  $\frac{1}{2}$  × 4 = 10  
 (i) Carbon nanotubes  
 (ii) Lithium ion battery  
 (iii) Bronze  
 (iv) Bio-catalysis  
 (v) Phase-Transfer Catalyst (PTC)  
 (vi) Nitrate fertilizers.

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