



WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 6th Semester Examination, 2021

CEMADSE05T-CHEMISTRY (DSE3/4)

INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates should answer in their own words and adhere to the word limit as practicable.

Answer any *three* questions taking *one* from each group

GROUP-A

(Unit 1 and 2)

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| 1. (a) What is the general composition of glass? Give a flow diagram of the manufacturing process of glass. | 1+3 |
| (b) What is SWCNT? Name different types of SWCNT. Write two uses of carbon nanotube. | 3 |
| (c) Distinguish between Vitrification and Glazing of Ceramics. | 3 |
| (d) What is direct fertilizer? Give an example. | 2 |
| (e) What do you mean by quick setting cements? | 2 |
| 2. (a) What is feldspar? Write its two properties. | 2 |
| (b) Give two examples of superconducting oxides. What are the uses of superconducting oxides? | 2 |
| (c) Describe what do you understand by high technology ceramics and state their application. | 3 |
| (d) Briefly describe the process of manufacturing ammonium phosphate and superphosphate fertilizers. | 3 |
| (e) Write down the composition of borosilicate glass. | 2 |
| (f) Comment on the conducting nature of C ₆₀ fullerene. | 2 |

GROUP-B

(Unit 3, 4 and 5)

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| 3. (a) Discuss the main constituents of Li-ion battery. | 3 |
| (b) Write down the difference between primary and secondary battery. | 2 |
| (c) How will you classify steels based on their carbon content? | 2 |

- (d) What is the composition of Ferritic stainless steel? Write down the uses of Stainless steel. 2
- (e) Briefly describe the process of metal spraying and anodizing. 2
- (f) What are the differences between water and oil based paints? 2
- (g) What are additives? How are they classified according to their function? 3
4. (a) Discuss the characteristics of a good paint. 3
- (b) Give a brief description of the working procedure of Pb-acid battery. 3
- (c) Write down the working functions of fuel cell and solar cell. 3
- (d) What are ferrous and non-ferrous alloys? 3
- (e) Write a short note on Carburizing. 2
- (f) What is solid state electrolyte battery? Give one use of it. 2

GROUP-C

(Unit 6 and 7)

5. (a) What are the advantages of heterogeneous catalysis over homogeneous catalysis? 3
- (b) What is phase transfer catalyst? Explain. 2
- (c) What is TON? Explain. 3
- (d) What is meant by regeneration of catalysts? 2
6. (a) What are Zeolites? Give two examples. 3
- (b) Catalyst cannot change the value of equilibrium constant — Justify. 2
- (c) How is RDX prepared? Give its synthetic route. 3
- (d) Write a short note on rocket propellants. 2

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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