

21MNP3E2AL**M.Tech III Semester Degree Examination, April/May - 2023****MINERAL PROCESSING****Surface Chemistry**

Time : 3 Hours

Maximum Marks : 70

Note : Answer **any five** of the following with Question No. 1 (Q. 1) **compulsory**. Each question carries **equal** marks.

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| 1. | (a) | Write a note on covalent solids. | 4 |
| | (b) | List out the properties of ionic compounds. | 5 |
| | (c) | What are colloidal compounds and how are they prepared ? | 5 |
| 2. | (a) | Differentiate between physisorption and chemisorptions. | 4 |
| | (b) | Write note on Freundlich adsorption isotherm. | 5 |
| | (c) | Describe BET theory. | 5 |
| 3. | (a) | Write a note on surface tension of solutions. | 4 |
| | (b) | Write a note on surface tension and its measurement. | 5 |
| | (c) | Explain surface tension and chemical composition. | 5 |
| 4. | (a) | Define liquid-liquid interface and write the application of liquid-liquid interface. | 4 |
| | (b) | Describe stagnant layer at solid-liquid interface. | 5 |
| | (c) | Write a note on films at interfaces and emulsions. | 5 |
| 5. | (a) | How static electricity and conductance affect solid-gas interface ? | 4 |
| | (b) | Write the effects of composition of liquid phases and electro-kinetic phenomenon. | 5 |
| | (c) | Describe electrical double layer and mutual repulsion. | 5 |
| 6. | (a) | Explain polarity in covalent bond. | 4 |
| | (b) | List the postulates of Henry's law. | 5 |
| | (c) | What is the importance of thermodynamics of surface tension ? | 5 |
| 7. | (a) | Write a note on importance of adsorption and utilization. | 5 |
| | (b) | List applications of metallic compounds. | 5 |
| | (c) | Write a note on interfacial energy. | 4 |
| 8. | (a) | Describe Polany's potential theory. | 5 |
| | (b) | Write a note on mechanical effects of adsorption. | 4 |
| | (c) | Describe multi-component system in liquid-liquid interface. | 5 |