Sl. No.

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21MNP3C10L

M.Tech. III Semester Degree Examination, April/May - 2023

MINERAL PROCESSING

Froth Floatation

(CBCS)

Time : 3 Hours Maximum Marks : 70

Note : *Answer **any five** of the following questions. **Q.No. 1 is compulsory.** Each question carries **equal** marks.*

1. (a) Define surface tension and surface energy. **4**

(b) How does contact angle influence the floatation. **5**

(c) What is the importance of adsorption in floatation. **5**

2. (a) How the bubbles are generated in the floatation cell and explain their importance. **4**

(b) Draw a conventional floatation figure and explain the importance of their parts in floatation **10**

3. (a) Classify floatation collectors. **6**

(b) Explain the role of Xanthenes as a collector in floatation. **8**

4. Write a note on :

(a) Selective floatation **5**

(b) Electro-floatation **4**

(c) Floc-floatation **5**

5. Explain the floatation circuits with a flowsheet.

(a) Iron ore **7**

(b) Lead-zinc sulphide **7**

6. (a) Define direct and indirect floatation. **4**

(b) Design of column cell floatation and its advantages. **5**

(c) In a laboratory floatation test, the following data were obtained. **5**

The pulp that consists of Galena and Quartz suspended in water has 30% Galena and 40% Quartz. Calculate pulp density and pulp dilution.

P.T.O.

7. (a) Explain the floatation kinetics and factors affecting the floatation. **6**

(b) 250 t.p.d Copper conc. has the following metallurgical data and Calculate the theoretical Head assay, Concentrate assay, Tailing assay, Production and recovery of copper. **8**

	First shift	**Second shift**	**Night shift**
Ore milled	75 t	89 t	86 t
Head assays	0.75%	0.82%	0.88%
Conc. assays	25.1%	25.3%	25.6%
Tailing assays	0.06%	0.065%	0.07%

8. (a) Explain Rougher, Scavenging and Cleaner circuits with a neat flow sheet. **7**

(b) Classification of frothers and explain. **7**

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