**PHMNP3**

# Ph.D Course Work Examinations, July-2023

## MINERAL PROCESSING

## Course-III: Concept of Applied Sciences and Engineering Technology.

**Time: 3 Hours** **Max. Marks: 70**

**Instruction: Answer all Section**

### SECTION-A

**I. Answer the fallowing.** **(2X10=20)**

a) Classify the pumps according to their working principles.
b) Define Bearing, list its types.
c) What do you mean by mean and mode?
d) Expand ESCA and ICPA.
e) List the different sampling methods.
f) Define magma and write the chemical composition of Olivine.
g) Write the Moh's hardness scale.
h) List the qualitative properties of that are studied under ore microscope.
i) What is Gear ratio
j) List the different methods of mining.

### SECTION-B

**II. Answer any four of the fallowing.** **(4X5=20)**

1. Explain Centrifugal pump with its application.
2. Explain inductively coupled plasma Analysis.
3. Write a note on Paragenesis and Zoning in mineral deposits.
4. With neat sketch explain the DTA analysis.
5. Explain the Impact of mining on Environment.

### SECTION-C

**III. Answer any three of the fallowing.** **(3X10=30)**

6. Explain Copper ore deposits of India.
7. Calculate the circulating load of a mill which is in closed circuit with a classifier and grinds 500tpd. The screen analysis of the mill discharge, classifier o/f and u/f gives 6.1, 12.4 and% -150+200# material by weight.
8. Write a note on Kinetics of Flotation.
9. Find the mean, Variance and Standard deviation for

| $X_i$ | 4 | 8 | 11 | 17 | 20 | 24 | 32 |
|---|---|---|---|---|---|---|---|
| $f_i$ | 3 | 5 | 9 | 5 | 4 | 3 | 1 |

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