

End Semester Examination
7th Semester, B.Tech. Chemical Engineering
Sub: Mineral Process Engineering

Max. Marks: 70

Time: 3Hrs.

Note: Answer SIX questions including Q.No. 1. Make suitable assumptions, if necessary.

The figures in the right hand margin indicate marks . Symbols carry usual meaning.

Q. No.		Marks
1	(a) What do you mean by beneficiation? Explain. (b) Explain the terms calcination and roasting. (c) What is critical speed in a ball mill and explain its significance? (d) Why crushing efficiencies are low in size reduction equipments? (e) What are the effective methods of size reduction? (f) Explain the difference between choke and free feeding. (g) Write the applications of mineral processing in chemical Engineering (h) List the minerals which are diamagnetic, paramagnetic & ferromagnetic properties. (i) Explain about different forces that are employed in different size reduction equipments. (j) Explain the difference between open and closed circuit grinding.	2x10
2	(a) Explain in detail with examples about various physical properties of minerals.	5
	(b) Explain in detail with examples about physiochemical properties of minerals.	5
3	(a) What are the various chemical and electrochemical methods in mineral processing? Explain in detail with examples.	10
4	(a) What are the various stages of grinding in a ball mill ? Explain	5
	(b) Explain construction & working of various ultrafine grinders with neat labeled diagrams.	5
5	(a) Describe briefly about the various types of leaching processes.	5
	(b) Explain about different solid-liquid separations in hydrometallurgy.	5
6	(a) Describe construction, working of industrial screening equipments with neat labeled diagrams.	5
	(b) Explain the difference between blake and dodge jaw crushers in detail.	5
7	(a) Explain about cyanidation and amalgamation processes for recovery of gold.	10
8.	Write Short notes on the following : (i) Pelletisation (ii) Briquetting (iii) Sintering (iv) Agglomeration.	2.5×4