Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Programme Name: M. Sc PGS **Semester : IV**
Course Name : Economic Geology **Time : 03 hrs**
Course Code : PEGS8022 **Max. Marks: 100**
Nos. of page(s) : 03

SECTION A (20 Marks)

S. No.		Marks	CO
Q 1	Discuss the role of chemical and physical properties of rock in controlling ore localization in hydrothermal deposits	**05**	**CO1**
Q 2	Classify Cu-Zn deposits of VMS origin	**05**	**CO2**
Q 3	Discuss the two types of textures exhibited by Chromite deposits	**05**	**CO1**
Q 4	Define the three zones in Supergene Enrichment process	**05**	**CO1**
	SECTION B (40 Marks)		
Q 5	The initial cash outlay for a Bauxite deposit is 2,00,000. The cash inflows will be 40000, 30000, 20000, and 50000 in 4 years. Compute the NPV and judge the project viability. **OR** There's a polymetallic deposit of Pb, Zn and Cu. Selling price is 2500/-, 2400/- and 6500/ ton. Selling cost is 5% of the selling price. The rate of recovery is 90%. Grade of ore is 6%, 3% and 5% for Zn, Pb and Cu respectively. Compute the equivalent grade of the deposit	**10**	**CO4**
Q 6	Highlighting the importance of various zones in porphyry deposit, analyze the mode of formation of Cu-deposits.	**10**	**CO3**
Q 7	Classify parent rocks for formation of Bauxite deposit in increasing order of importance.	**10**	**CO3**
Q 8	Defend the role of scale and how will it differ for a) Reconnaissance, b) Prospecting, c) General Exploration and d) Detailed Exploration	**10**	**CO4**
	SECTION C (40 Marks)		
Q 9	List down the suitable locations for placer accumulation. Defend the role of streams as both the medium & site of deposition for placer deposit.	**20**	**CO5**
Q 10	There is a Pb deposit, which is evaluated based upon 7 boreholes. Find out the average grade of the deposit. The details are as follows	**20**	**CO5**

Sample location	Thickness (mtrs)	Area (ft2)	Tonnage Factor	grade
B-1	150	5320	10	1.21
B-2	135	5300	10	0.97
B-3	?	4400	10	?
B-4	175	5520	10	0.75
B-5	155	6800	10	0.82
B-6	180	4960	10	0.66
B-7	?	4520	10	?

The max. depth up to which, deposit is encountered is 300. The information for Borehole 7 is as follows. Each section is at an interval of 50. The respective grade for each section is 0.4, 0.9, 1.2, 1, 1.7 &1.1 of Pb.

For Bore hole 3, the information is as follows-

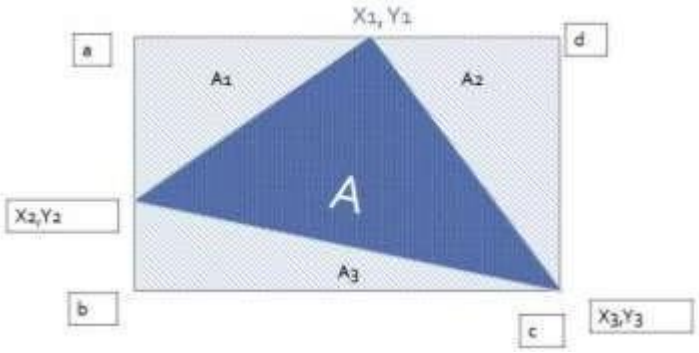
Thickness	Grade
0-50	0.3
50-100	0.7
100-150	0.5
150-180	1
180-250	0.7
250-300	0.8

Cut-off grade is **0.7%** of Pb

OR

Using neat sketch, differentiate between included & extended area methods of Reserve estimation. With the given set of information and Schematic, calculate the ore reserve for deposit **A.**

Corresponding thickness= 3, 5 & 4 mtrs respectively. The average density of ore is 1.5 ton/ m^3



Easting (in mtrs)	Northing (in mtrs)
1100	1200
1200	1500
800	1100