

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May, 2019

Programme Name: B. Tech (Geoinformatics Engineering)

Semester : IV

Course Name : Mineral Exploration and Mining Geology

Time : 03 h

Course Code : PEGS 2006

Max. Marks : 100

Nos. of page(s) : 2 (two)

Instructions: Use figure wherever it is required

SECTION A

S. No.		Marks	CO
2.	<p>Above figure, Y-axis: Copper levels in soils in ppm; X-axis: Distance in feet Choose best option from the below that depict the image, and justify? a) Vertical distribution of Copper; b) Mobility of Copper; c) Behaviour of Copper</p>	3+2	CO4
2.	What are the sources for terrestrial radiation? How terrestrial radiation is measured?	5	CO1
3.	What are the phases identified in geochemical program?	5	CO2
4.	How geomorphology/ drainage pattern enables concentration of elements?	5	CO3
5.	What are the differences between Study phase and Reconnaissance phase?	5	CO3
6.	Differentiate passive and active geophysical surveys in mineral exploration?	5	CO2

SECTION B

7.	How Geophysical Methods are useful in the exploration of Gem/ precious stones?	10	CO3
8.	What are the advantages and disadvantages of Drill types, a) Auger b) RAB (Rotary Air Blast) c) Air core, c) RC (Reverse Circulation) and e) Diamond drilling Methods?	10	CO3

9.		5+5	CO4
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Why the High Risk is assigned to Reconnaissance Exploration?

How the risk is usually get reduced? With time?

10a.	Illustrate behavior of elements Soil Geochemical Survey are done? Comment on their applications in Gold Exploration?	10	CO2
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(OR)

10b.	Explain how dispersion of Zn, Pb and Cu behave in the system? Use figures?	10	CO2
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SECTION-C

Answer all the following?

11.	What are the advantages of open-pit mining over underground mining? What geological conditions enable to opt got decline mining method over vertical shaft mining method?	10	CO4
12.	How soft and hard geological materials behave in Gravity survey? How radiometric and geochemical exploration together happen to be useful in Uranium exploration?	10	CO4
13.	How the following methods may be integrated in mineral exploration? a) X-ray Diffraction, b) X-ray Fluorescence, and c) Differential Thermal Analysis	10	CO4

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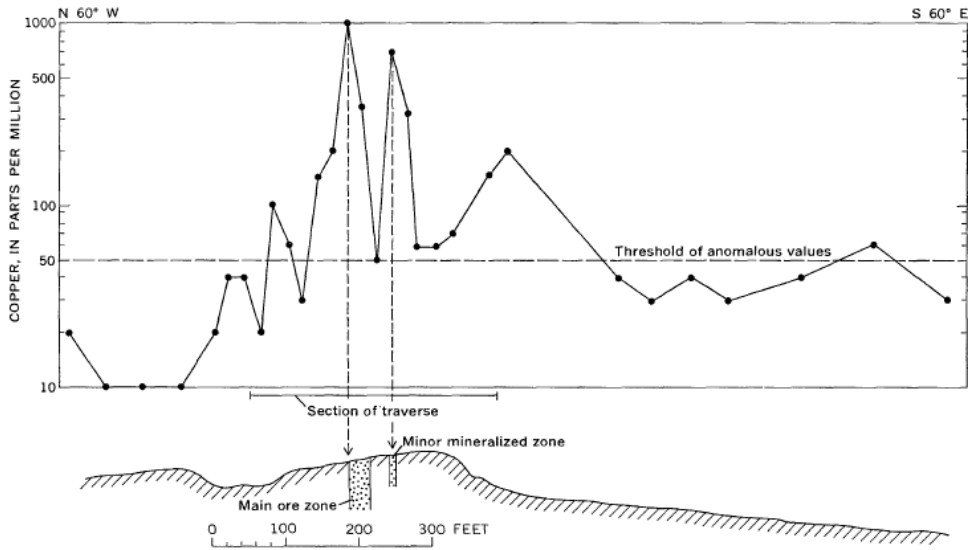
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SECTION A

S. No.		Marks	CO
1.	<p>From above figure, What are/is the basic learning(s) from geochemical exploration point of view?</p>	5	CO2
2.	Are the radiometric methods passive or active? Justify? What is their importance?	1+4	CO1
3.	How Decline mining method differ from Open cast mining?	5	CO2
4.	What is the importance of Magnetic Method of Geophysical Exploration?	5	CO3
5.	How Feasibility study is different from Mine development?	5	CO3
6.	What are the applications of Gravity survey?	5	CO2

SECTION B			
7.	How Gravity survey enables to understand crustal behavior? (Use Singhbhum shear zone as an example)?	10	CO3
8.	Show how strip mining take place? What type of deposits are suitable in strip mining?	4+6	CO3
9.	 <p>What the above image is depicting? Conceptualize a geochemical map using above conditions?</p>	3+7	CO4
10a.	How soil geochemical survey is different from geomorphology based geochemical survey?	10	CO4
(OR)			
10b.	What is stream sampling? What type of ore deposits help through this sampling?	5+5	CO4
SECTION-C			
Answer all the following?			
11.	Explain why expenditure during reconnaissance survey happen to be low compared to Mine Development?	10	CO4
12.	What are the methods useful in Uranium Exploration? Do you support Remote Sensing techniques in Uranium Exploration? Justify?	5+5	CO4
13.	How Aerial Photography is performed? How mosaicking is executed?	5+5	CO4