



(P.O. Bidholi, via Premnagar, Dehradun Pin: 248 006)

End-semester Examination-May 2018

Name of the Program: B. Tech (*Geosciences Engineering*)

Course Title: Economic Geology

This question paper has 2 (*two*) pages

Max. Marks: 100

Semester – IV

Code: GSEG 211

Duration: 3 hours

Note: Include appropriate Question Number. Do not split answers on largely separated answer sheets. Overwriting, striking-off answers, illegible answer or any kinds of incorrect scribbling will not attract evaluation. Use pencil while drawing figures and other forms of charts.

SECTION: A

Questions from 1 to 10 carry 3 (*three*) marks each. Answer all of them? (10 × 03 = 30)

1. Statement: Pegmatites are important source for strategic minerals. How do you define Pegmatites? (CO 3)
2. What type of mineral deposits are expected from Sedimentary process? Give suitable examples? (CO 1)
3. Give suitable examples for Precious Metals? (CO 1)
4. Compare Telethermal deposits with Hypothermal deposits based on depth and temperature of formation?
5. Examine importance of chemical grade of Lithium? (CO 3)
6. Using a simple sketch, represent strike-slip faults? Where do they happen to occur? (CO 4)
7. What are the prominent iron ore deposits of India? (CO 4)
8. The porphyry deposits, several being giant in size, Give suitable examples for porphyry deposits along island arcs? Which part of continent(s) is known for porphyry deposits along island arc? (CO 1)
9. What are the suitable locations for Thorium Deposits in India? (CO 4)
10. What is the essential parameter that signifies symbology of ore trade between two geographies? Justify?

SECTION: B

Questions from 11 to 15 carry 8 (*eight*) marks each. Answer all of them? (05 × 08 = 40)

11. a) What is an host rock in economic geology? (CO 1) (2)

Statement: It is a common geological knowledge that different igneous rocks host different associations of ore deposits and particular metal associations are found in specific igneous rocks, e.g., Cr, V, Ni, PGE, Cu, Zn, and Au (both siderophile and chalcophile) are associated with basic-ultrabasic igneous rocks in which they show the maximum crustal abundance...

b) Compare the differences between siderophile and chalcophile elements? (CO 1) (6)

12. Statement: The Cu–Ni sulfide ores are common in the early cycles of some greenstone belts where they may occur subtypes rocks like, the komatiitic rocks

a) What are the komatitic rocks? (2)

b) Explain Origin of the Chromite layers? (CO 3) (6)

13. Statement: Mineral zoning is common in pegmatites.

a) Give a suitable representation for mineral zoning? (4)

b) Examine importance of the Pegmatite Deposits? (CO 3) (4)

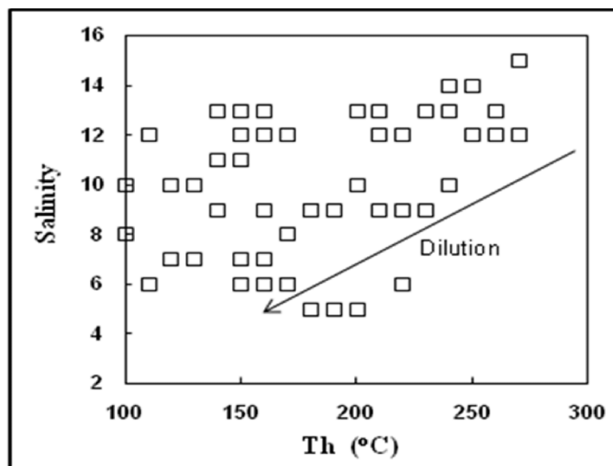
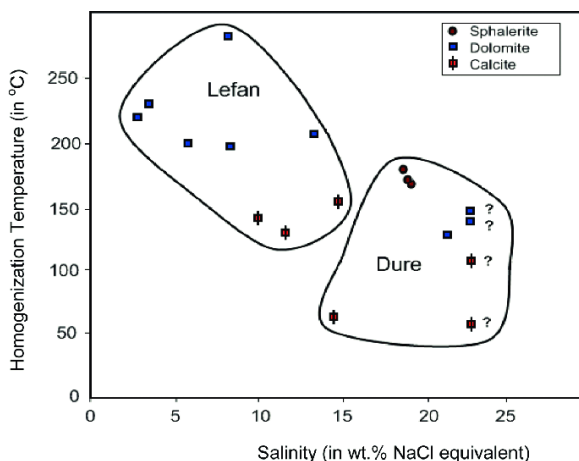
14. What are the subdivisions in the rare element class of granite pegmatites? (CO 1) (8)

15. Explain Tectonic classification of ore deposits? (CO 3) (8)

SECTION: C

Questions 16 carry 30 (thirty) marks

The two images a and b are taken from i) https://www.researchgate.net/figure/Fluid-inclusion-salinity-vs-homogenization-temperature-for-the-studied-deposits-Dure_fig4_322709827 and ii) https://www.researchgate.net/figure/Salinity-versus-homogenization-temperature-Th-C-for-fluid-inclusions-in-vein-fluorite_fig4_308400111 for academic purpose



a) What is Microthermometry? (CO 3) (10 Marks)

b) What are the types of Fluid inclusions? (CO 3) (10 Marks)

c) Give your observations and critical conclusion of the above 2 image? (10 Marks)