

This question paper contains 2 printed pages.

Your Roll No. ....

Sl. No. of Ques. Paper : 2055  
Unique Paper Code : 32191301  
Name of Paper : Igneous Petrology  
Name of Course : B.Sc. (Hons.) Geology (CBCS)  
Semester : III  
Duration : 3 hours  
Maximum Marks : 75

GC-3

(Write your Roll No. on the top immediately on receipt of this question paper.)

Answer any five questions. All questions carry equal marks.

1. Explain the possible mechanisms for triggering melting in the earth's upper mantle?
2. Write short notes on (any two):
  - (a) Surface samples of mantle origin
  - (b) Origin of large volumes of silicic magmas in subduction zone
  - (c) Open system.
3. Distinguish between (any two):
  - (a) Tholeiite basalt and Alkali basalt
  - (b) Island arc magmatism and continental arc magmatism
  - (c) MORB and OIB
4. Explain briefly the IUGS system of classification of igneous rocks.
5. With the help of phase diagram explain the following:  
In a ternary Di-Ab-An system what will be the cooling path for a bulk composition
  - (i) 'a' lying within Di area
  - (ii) 'b' lying within Plg area?
6. Define the following with one example of each:
  - (a) Cotectic line
  - (b) Incongruent melting
  - (c) Peritectic point.

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(c) One gram mole of a perfect gas expands isothermally to four times its initial



7. Write briefly on evolution of alkaline rock suites.

8. Write short notes on:

- (a) Dolerite
- (b) Granite
- (c) Komatiite.