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S. No. of Question Paper : 6167

Unique Paper Code : 219303

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Name of the Paper : Igneous Petrology (GEHT-302)

Name of the Course : B.Sc. (Hons.) Geology

Semester : III

Duration : 3 Hours

Maximum Marks : 75

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

Question No. 1 is compulsory. Attempt any four

more questions from the remaining.

1. Answer the following :

(1+1+3+2+1+1+2+3+1)

(a) In the following list which term refers to silica content typical of peridotite ?

(a) Ultramafic

(b) Mafic

(c) Intermediate

(d) Silicic

(b) In the following list which term refers to igneous rocks with silica content typical of granite and rhyolite ?

(a) Ultramafic

(b) Mafic

(c) Intermediate

(d) Silicic

(c) Pressure-release melting is a process that is thought to dominate beneathand.....

P.T.O.

- (d) Temperature range for basalt is.....and that for rhyolite is.....
- (e) Dehydration melting wherein a phase melts to a liquid with the same composition as the solid is
- (f) In the following list, what item or items are not included in the Discontinuous Reaction Series ?
- (a) Olivine
 - (b) Pyroxene
 - (c) Amphibole
 - (d) Plagioclase
- (g) The last minerals to crystallize from a basaltic liquid in which crystal settling has played a role would be.....and.....
- (h) In Diopside-Albite-Anorthite system bulk composition on the plagioclase side has a.....path whereas that on the diopside side has a.....path moving.....
- (i) In order for crystal fractionation to take place crystals must.....

2. Write a concise account of magmatism at convergent plate tectonic setting. 15

3. Write short notes on the following (any three) : 5×3=15

- (a) Normative classification
- (b) Liquid immiscibility
- (c) Bowen's reaction series
- (d) Ophitic and hyalo-ophitic textures.

4. With the help of suitable figures explain how the following types of granite may form : 7.5×2=15
- (a) Subsolvus granite
- (b) Hypersolvus granite.
5. In a ternary system Di–Ab–An explain with the help of suitable sketches what will be the cooling path for a bulk composition (any *one*) : 15
- (a) 'a' lying within Di area
- (b) 'b' lying within Plg area.
6. How are igneous rocks classified based on mineralogy ? 15
7. Describe the following rock types briefly : 5×3=15
- (a) Carbonatites
- (b) Kimberlies
- (c) Lamprophyres.
8. What are the evidences of magma mixing ? 15