



UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 3rd Semester Examination, 2020

CC5-GEOLOGY

IGNEOUS PETROLOGY

Full Marks: 40

ASSIGNMENT

The figures in the margin indicate full marks.

Answer any four questions from the following

10×4 = 40

1. How can you demonstrate crystallization in a simple binary eutectic system? Explain with neat sketch. How should a peritectic point change the crystallization pattern in a two phase system from the simple binary eutectic? Explain with diagram. 5+5=10
2. What is TAS diagram and what is its significance? Which type of classification mostly used for plutonic rocks? What is CIPW classification? 2+3+3+2=10
3. What are the differences between flux melting and decompression melting? Explain your answer with proper diagram. 5+5=10
4. Classify the granite plutons on the basis of different crustal depths. Write down the comparison between I-type and S-type Granites. 6+4=10
5. How can you explain the generation of phaneritic and aphanitic texture in igneous rocks in terms of volumetric / surficial energy of grains and their growth versus nucleation rate? 10
6. Can AFC (Assimilation Fractional Crystallization) be a root cause of magmatic differentiation? Explain with proper reasoning. Can Continental flood basalt generate large igneous provinces? Explain how with example. 5+5=10
7. Describe how viscosity and density of different magmas change with temperature and H₂O wt%. 10
8. Define the following: 2½×4=10
 - (a) Batholith
 - (b) Spinifex texture and Rapakivi texture
 - (c) Ropy lava and Aa lava
 - (d) Ophitic texture and Granophyric texture.

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