**B. Sc. 4th Semester (Honours) Examination, 2021-2022**

**GEOLOGY**

**Course Id: 42011** **Course Code: SHGEL-401C-8(T)**

**Course Title: Metamorphic Petrology**

**Time: 1 Hour 15 Minutes** **Full Marks: 25**

*The figures in the right-hand side margin indicate full marks.*
*Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* of the following questions: 1X5 = 5
   a. Name two minerals that mark the beginning of metamorphism of mafic rocks.
   b. Define metamorphic facies.
   c. Define skarn.
   d. What is paragneiss?
   e. Write one use of crystalloblastic series in metamorphic petrology.
   f. What is annealing in metamorphic petrology?
   g. Define hornfels.
   h. What does the prefix, *blasto-* of a metamorphic rock indicate?

2. Answer *any two* of the following questions: 5X2 = 10
   a. Compare between Barrovian-type and Buchan-type of metamorphism.
   b. Write short notes on (i) phase transformation reaction, and (ii) devolatilization reaction.
   c. Give a comprehensive classification of metamorphic rocks based on their bulk compositions.
   d. Write a brief note on the indirect evidence in support of thermodynamic equilibrium of the mineral assemblage in a metamorphic rock.

3. Answer *any one* of the following questions: 10X1 = 10
   a. Give a classification scheme of facies showing P-T ranges in a diagram.
   **b.** State the mineralogical and textural changes that take place during progressive metamorphism of pelitic rocks from greenschist to granulite facies conditions.

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