2023
M.Sc.
First Semester
CORE – 03
GEOLOGY
Course Code: MGLC 1.31
(Igneous & Metamorphic Petrology)

Total Mark: 70 *Pass Mark: 28*
Time: 3 hours

Answer five *questions, taking* one *from each unit.*

UNIT–I

1. Define magma. Describe in detail the volcanism and its products at convergent plate settings with proper illustrations. 2+12=14

2. Write notes on the following: 7×2=14
   (a) IUGS classification of phaneritic ultramafic igneous rocks
   (b) Decompression melting

UNIT–II

3. Write notes on the following: 7×2=14
   (a) S-I-A-M classification of granitoids
   (b) Carbonatites

4. Write in detail the petrology and evolution of ophiolite complex. 14

UNIT–III

5. Define trace elements. Explain in detail the applications of trace element studies in petrogenesis and source characterization of the igneous rocks. 14

6. Write notes on the following: 7×2=14
   (a) Rare earth elements
   (b) Application of radiogenic isotopes in geological sciences

UNIT–IV

7. What are metamorphic rocks? With comprehensive illustrations write on the concept of P-T-t path and the related metamorphic reactions. 2+12=14

8. Describe the following in brief: 7×2=14
   (a) Barrovian zones of metamorphism
   (b) Regional metamorphism of pelitic metamorphic assemblages

UNIT–V

9. Write explanatory notes on the following: 7×2=14
   (a) Application of geobarometry to metamorphic terranes
   (b) Eclogite facies

10. Write a comprehensive note about the characteristic minerals and PT conditions for low pressure metamorphic rocks with suitable diagrams. 14