

M.Sc. (Geology) (NEP Pattern) Semester-I
**NEP-53 / PSCGEOT03 - Paper-III : Metamorphic Petrology and
Geological Mapping**

P. Pages : 2

Time : Three Hours



GUG/W/23/15105

Max. Marks : 80

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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat sketch wherever necessary.

1. Describe types of metamorphism. 16

OR

Write short notes on-

- a) Factor controlling metamorphisms. 4
b) Transit geotherm. 4
c) Protolith. 4
d) Nature and scope of the metamorphism. 4

2. Describe metamorphism terrains in respect plate tectonic. 16

OR

Write short notes on-

- a) Metamorphic facies. 4
b) Metamorphic zones. 4
c) Regional metamorphism of pelitic rocks. 4
d) Regional metamorphism of mafic rocks. 4

3. Describe mineralogical phase rule for open and closed systems. 16

OR

Write short notes on-

- a) Gibbs free energy. 4
b) Fugacity of metamorphic reaction. 4
c) Isograds and reaction isograds. 4
d) ACF diagram. 4

4. Describe the topographic map in details and explain its usage as base map for geological mapping. **16**

OR

Write short notes on-

- a) Outcrop maps. **4**
 - b) Section maps. **4**
 - c) Geological symbols on map. **4**
 - d) Geological mapping in igneous terrain. **4**
5. Write short notes on- **16**
- a) Pressure-temperature regime.
 - b) Metamorphic minerals.
 - c) Pressure-temperature time path.
 - d) Anatexis.
 - e) Entropy.
 - f) Enthalpy.
 - g) Contours.
 - h) Vertical equivalence.
