

**3/EH-26 (iii) (Syllabus-2015)**

**2017**

( October )

**GEOLOGY**

( Elective/Honours )

( **Structural Geology and Geotectonics** )

( GELH-301 )

*Marks : 56*

*Time : 3 hours*

*The figures in the margin indicate full marks  
for the questions*

Answer **four** questions, selecting **one** from each Unit

**UNIT—I**

( **Introduction to Structural Geology and Folds** )

1. (a) Describe the methods of measurement of linear and planar structural features in rocks. 3+3=6
- (b) Define hinge, axial surface and fold axis of folds. Explain Ramsay's classification of folds on the basis of dip isogons. 3+5=8

2. (a) Define any five primary sedimentary structures stating their significance. 5
- (b) Write brief notes on any *three* of the following : 3×3=9
- Pumpelly's rule
  - Asymmetrical fold
  - Outcrop of inclined rocks on uneven ground
  - Criteria for recognition of unconformities (any three)

## UNIT—II

( **Fault, Foliation and Lineation** )

3. (a) Discuss how to distinguish fault from shear zone. Write a note on Anderson's theory of faulting. 3+5=8
- (b) Write a brief note on crenulation foliation. 6
4. (a) Write a brief note on the common types of mineral lineations. 5
- (b) Write short notes on any *three* of the following : 3×3=9
- Elements of faults
  - Joints
  - Foliation in fault zones
  - Slip and separation

8D/121

( Continued )

## UNIT—III

( **Rock Deformation** )

5. (a) Discuss the concept of force and stress. Derive the components of stress acting at a point in a rock. 2+6=8
- (b) Define strain. What is angular shear and shear strain? 2+4=6
6. (a) Explain the concepts of pure shear and simple shear. 5
- (b) Write short notes on any *three* of the following : 3×3=9
- Rock deformation
  - Strain states
  - Resolution of stress acting on a plane
  - Strain behaviour of rocks with increasing confining pressure

## UNIT—IV

( **Geotectonics** )

7. (a) What are 'plates'? Describe the theory of Plate Tectonics. 2+6=8
- (b) Explain the origin of mountain chains with reference to Plate Tectonics. 6

8D/121

( Turn Over )

8. (a) Write a note on sea-floor spreading.
- (b) Write short notes on any *three* of the following : 3×3=9
- (i) Wilson cycle
  - (ii) Transform fault
  - (iii) Geological evidences of continental drift
  - (iv) Causes of plate motion

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