2016

(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 Fold)

1. *(a)* What is an unconformity? Explain the types of unconformities with sketches. 2+4=6

(b) Explain the classification of folds on the basis of fold symmetry. Write a short note on Pumpelly's rule. 5+3=8

2. *(a)* Describe the nature of outcrops of inclined rocks over uneven topography. 5

(b) Write brief notes on any *three* of the following : 3×3=9

(i) Dip and strike

(ii) Buckle folds

(iii) Cross-beds and graded beds

(iv) Fold axis and fold types

UNIT—II

(Fault, Foliation and Lineation)

3. *(a)* Define the parts of a fault. Outline the slip-classification of faults. 3+5=8

(b) Write a brief note on the types of constructed lineation. 6

4. *(a)* Outline the types of spaced foliation. 5

(b) Write brief notes on any *three* of the following : 3×3=9

(i) Changes in fault attitude

(ii) Mohr-Coulomb law of failure

(iii) Rock cleavage

(iv) Foliation in fault zones

(Continued)

UNIT—III

(Rock Deformation)

5. *(a)* Define stress. Explain the resolution of stress acting on a plane. 1+4=5

(b) Elucidate the strain behaviour of rocks at varying confining pressures, temperatures and solutions with suitable illustrations. 3+3+3=9

6. *(a)* State mathematically, the common strain parameters used to measure changes in line lengths and angle between lines. 5

(b) Write brief notes on any *three* of the following : 3×3=9

(i) Coaxial and non-coaxial strain

(ii) Strain states

(iii) Stress ellipsoid

(iv) Simple shear

UNIT—IV

(Geotectonics)

7. *(a)* Amplify on the paleontological and paleomagnetic evidences of continental drift. 6

(b) Write a note on the types of plate boundaries. What is Benioff zone? 5+3=8

(Turn Over)

8. *(a)* Explain the concept of plate tectonics. 5

(b) Write brief notes on any *three* of the following : 3×3=9

(i) Island arc

(ii) Transform faults

(iii) Cause of plate motion

(iv) Wilson cycle

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