

Odd Semester, 2020

(Held in March, 2021)

GEOLOGY

(Elective/Honours)

(GELH-301)

(Structural Geology and Geotectonics)

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) List four common primary structures.
Add a note on their significance in
structural geology. 2+2=4
- (b) Describe the different types of
unconformities. How are unconformities
recognized in the field? 6+4=10
2. (a) Explain Fleuty's classification of folds. 8

- (b) Write brief notes on any *two* of the
following : 3×2=6
- (i) Buckling
- (ii) Dip and strike
- (iii) Class 1 and Class 2 folds of
Ramsay

UNIT—II

(Fault, Foliation and Lineation)

3. (a) Distinguish between joints and faults. 2
- (b) Give the classification of faults on the
basis of slip (use drawings where
necessary). 12
4. (a) Write a brief note on the types of
structural lineation. 5
- (b) Write a brief note on any *three* of the
following : 3×3=9
- (i) Extensional joints and shear joints
- (ii) Rock cleavage
- (iii) Listric faults
- (iv) Crenulation foliation

(3)

UNIT—III

(**Rock Deformation**)

5. (a) What is the difference between stress and strain? 4
- (b) With the help of neat sketches, differentiate between the stress ellipse and the strain ellipse. 10
6. (a) Differentiate between homogeneous strain and heterogeneous strain. 3
- (b) How does strain vary with change in confining pressure? 2
- (c) Write brief notes on any *three* of the following : 3×3=9
- (i) Principal stress
- (ii) Components of stress acting on a plane
- (iii) Strain states
- (iv) Strain parameters

UNIT—IV

(**Geotectonics**)

7. (a) What are the different types of plate margins? Describe the characteristics of convergent plate boundary. 3+6=9

(4)

- (b) Write a brief note on the formation of mid-oceanic ridges. 5
8. (a) Explain the Wilson's cycle. 5
- (b) Write brief notes on any *three* of the following : 3×3=9
- (i) Benioff zone
- (ii) Island arcs
- (iii) Transform faults
- (iv) Palaeontological evidences of continental drift

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