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(November)

GEOLOGY

(Major)

Course : 301

(Structure and Tectonics)

Full Marks : 48

Pass Marks : 19

Time : 2 hours

The figures in the margin indicate full marks
for the questions

(3.1 : Structural Geology)

(Marks : 30)

1. What are different types of stresses?
Describe different units of stress and strain.
What are ductile and brittle behaviour of
rocks? What do you mean by plasticity
and rigidity in rocks? 2+2+2+3=9

2. Describe the geometrical elements in a fold.
Discuss the simple mechanism of folding.
Describe the geometric and morphological
classification of folds. 3+3+6=12

Or

Describe different structural elements on a fault with neat sketches. Discuss the simple mechanism of faulting. What are the criteria for recognition of faults? Give two diagrams for fault lines representing vertical and inclined faults on a geological map provided the topography is uneven.

2+4+4+2=12

3. Explain the following terms (any *two*) :   3×2=6

(a) Foliations and lineations

(b) Extension joints

(c) Determination of top and bottom of sedimentary sequences

4. Answer the following as directed :   1×3=3

(a) True and apparent dips of an inclined planar surface are measured on a ―― plane.

(Fill in the blank)

(b) A cylindrical fold has ―― fold axes.

(Fill in the blank)

(c) Powdered, crumbly fault rocks with minor visible rock fragments are known as (fault gouge/fault breccia/crust breccia).

(Choose the correct option)

(**3.2 : Tectonics**)

(*Marks* : 18)

5. Define plate tectonics. What are the volcanic and earthquake belts? What do you mean by the term 'tripple junction'? Describe the features associated with mid-oceanic ridge on the basis of present-day knowledge. What is an 'island arc'? $2+4+2+3+1=12$

Or

Write explanatory notes on the following :
$3×4=12$

(a) Plate boundaries

(b) Rift valley

(c) Deep-sea trenches

(d) Seafloor spreading

6. Write short notes on the following (any *two*) :
$2×2=4$

(a) Belt of Schuppen

(b) Naga thrust and Disang thrust

(c) Main boundary fault

(d) Hot spot and mantle plume

(*Turn Over*)

7. Fill in the blanks : 1×2=2

(a) Convergent boundaries are mainly associated with —— faults.

(b) The strike of the Kopili fault is ——.