[This question paper contains **3** printed pages.]

Your Roll No. ....

5901   **B**

B.Sc. (Hons.) Geology/Sem. III

Paper – GEHT-307 : Structural Geology

Time : 3 *Hours*   *Maximum Marks* : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Answer any *Five* questions.

All questions carry equal marks.

1.   Write short notes on any *three* of the following : 3×5=15

    (*a*)   Principal stress;

    (*b*)   Buckling folds;

    (*c*)   Angular unconformity;

    (*d*)   Chocolate tablet boudinage;

    (*e*)   Slickenside lineation;

    (*f*)   Feather joints.

2.   Define 'stretch', 'quadratic elongation' and 'logarithmic strain'. Discuss the different types of strain and the

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corresponding geometry of strain ellipsoids with the help of Flinn's diagram. 3+12=15

3. What is 'intersection lineation' ? Describe the different types of cleavage-bedding intersection lineation in folded strata and discuss its use in determining the fold geometry. 15

4. How would you define the terms 'foliation', 'cleavage' and 'schistosity' ? Discuss the formation of 'spaced cleavage' with suitable sketches. 3+12=15

5. Define fold axis and axial plane of a fold. Discuss briefly the classification schemes of folds based on :

    (*i*) Orientation of the axial plane,

    (*ii*) Orientation of the fold axis/hinge line; and

    (*iii*) Amount of the interlimb angle. 3+12=15

6. How would you define 'net slip' on a fault ? What do the terms 'throw' and 'heave' mean ? Discuss the problems of determining sense of slip of a fault from the relative displacement of marker beds only, with suitable examples and sketches. 1+2+12=15

7. Compare and contrast the following (any *three*) :   3×5=15

   (*a*) Recumbent fold and Reclined fold;

   (*b*) Pucker lineation and Stretching lineation;

   (*c*) Slaty cleavage and Disjunctive cleavage;

   (*d*) Median surface and Enveloping surface of folds;

   (*e*) Columnar joints and Release joints.

8. What is Linear Magnetic Anomaly in the oceanic crust ? How did it help to establish the theory of Sea Floor Spreading and Plate tectonics ?   3+12=15