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PG CBCS
M.A. /M.Sc. Semester-I Examination, 2020
GEOGRAPHY
PAPER: GEO 195
(PRACTICAL)

Full Marks: 50

Time: 4 Hours

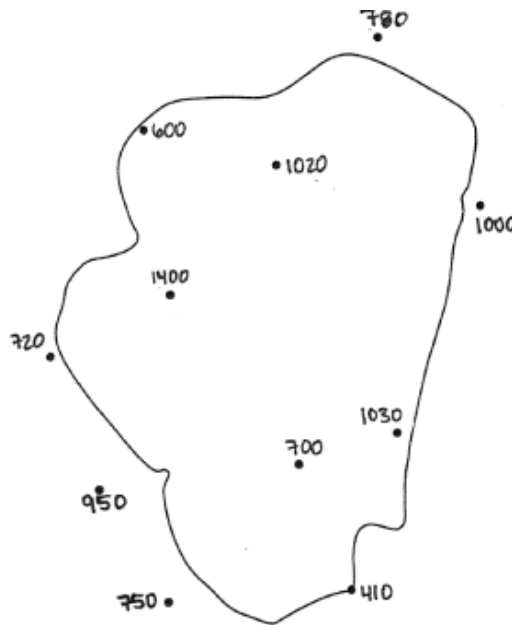
The figures in the right-hand margin indicate full marks.
 Attempt all the following questions

Write the answer for each unit in separate sheet
GROUP/UNIT - A

(GEO195.1: HYDROLOGICAL TECHNIQUES)

1. Estimate average annual precipitation (mm) from the following information of a river basin.

7



Scale: 1:50000

2. Prepare a unit hydrograph from the following information of a river basin and interpret it.

(a) Basin area 10 km²

7

(2)

| Time (a.m. - p.m.) | Discharge(m³/sec) |
|---------------------------|-------------------------------------|
| 5 | 60 |
| 6 | 55 |
| 7 | 82 |
| 8 | 110 |
| 9 | 120 |
| 10 | 150 |
| 11 | 180 |
| 12 | 220 |
| 13 | 250 |
| 14 | 300 |
| 15 | 320 |
| 16 | 350 |
| 17 | 300 |
| 18 | 200 |
| 19 | 180 |
| 20 | 60 |
| 21 | 50 |
| 22 | 48 |

(b) Mention the application of unit hydrograph.

2

(c) Write a short note on importance of rating curve.

1

3. Estimate average discharge by Area-Velocity method from the following information.

3

(P. T. O)

(3)

| Segment | Width(m) | Depth(m) | Surface Velocity | 1 m depth velocity | 2 m depth velocity |
|---------|----------|----------|------------------|--------------------|--------------------|
| 1 | 11 | 3 | 3 | 4 | 2 |
| 2 | 17 | 4 | 3.2 | 4.3 | 5 |
| 3 | 12 | 5 | 3.6 | 4.6 | 5.2 |
| 4 | 18 | 6 | 4 | 4.8 | 6.8 |
| 5 | 10 | 7 | 4.5 | 5 | 2.1 |
| 6 | 20 | 5 | 3 | 6 | 2.2 |
| 7 | 21 | 4 | 4 | 7 | 2.4 |
| 8 | 15 | 2 | 5 | 4 | 3 |

4. Viva-voce and Practical Note Book.

5

GROUP/UNIT - B**(GEO 195.2: SEDIMENTOLOGICAL ANALYSIS)**

1. 500 gm. dry sediment was subjected to a sieve analysis and the weight of sediment retained on each sieve is as follows:

10

| I.S. Sieve Size (mm.) | Mass of Soil (gm.) | I.S. Sieve Size (μ^*) | Mass of Soil (gm.) |
|-----------------------|--------------------|-----------------------------|--------------------|
| 10.0 | 10 | 425 | 85 |
| 4.75 | 20 | 212 | 60 |
| 2.00 | 165 | 150 | 20 |
| 1.00 | 100 | 75 | 40 |

*1 μ = 1000 mm.

Plot the grain size distribution curve on a semi-log graph paper and determine the following:

- Percent of gravel, sand, and silt-clay fraction in the soil as per I.S.
- Effective size.
- Coefficient of Uniformity.

(P. T. O)

(4)

D. Coefficient of Curvature.

E. The gradation of sediment.

2. Draw a lithological profile from the given table through Sedlog software (save the result in the Desktop/M.A./M.Sc. Sem-I Exam output folder and give the file name as your Roll No. i.e. S01). 7

| Rock Type | Grain Size | Thickness(m) | Age(Ma) | Formation | Fossils/Structure |
|------------------|-------------------|---------------------|----------------|------------------|--------------------------|
| Conglomerate | Boulder | 1.8 | 70 | Paleocene | Foraminifera |
| Sandstone | Packstone | 2.0 | 80 | Zheya | - |
| Limestone | Rudstone | 2.5 | 120 | Zheya | Brachiopods |
| Chert | Grainstone | 2.1 | 66 | Cretaceous | Vertebrates |

3. Briefly discuss the role of Phi-Scale in sedimentological analysis. 3

4. Viva-voce and Practical Note Book. 5
