PG CBCS M.A. & M.Sc. Semester-I Examination, 2021 **GEOGRAPHY** PAPER: GEO 195 (PRACTICAL) (HYDROLOGICAL TECHNIQUES AND SEDIMENTOLOGICAL ANALYSIS)

Full Marks: 50

Time: 4 Hours

The figures in the right-hand margin indicate full marks. Candidates are required to give their answers in their own words as practicable. Illustrate the answers wherever necessary.

Write the answer for each unit in separate sheet

GROUP/UNIT

(GEO 195.1: HYDROLOGICAL TECHNIQUES)

Full Marks: 25

1.	1. With appropriate examples elucidate the steps of constructing a Thiessen network.		
2.	Write down the steps used to construct a unit hydrograph for a gaged watershed. Men	tion its	
	applicability in hydrological planning.	8+2	
3.	Briefly discuss the characteristics of area-depth curves in arid regions.	5	

GROUP/UNIT

(GEO 195.2: SEDIMENTOLOGICAL ANALYSIS)

Full Marks: 25

Answer any <u>TWO</u> questions from the following:

1. 1000 gm. dry sediment was subjected to a sieve analysis and the weight of sediment retained on each sieve is as follows: 5+3+2

φ	Sieve Size	Sediment Retained
Size	(mm.)	(gm.)
-1.0	2	100
0.0	1	150
1.0	0.5	250
2.0	0.25	200
3.0	0.125	175
4.0	0.063	125
-		1000

2 X 10=20

2+2+1

- a) Construct a plot of grain size (x-axis) versus cumulative percent (y-axis).
- b) Using either of the cumulative curves determine the phi size for each of the following phi values: phi at 5%, phi at 16%, phi at 25%, 50%, 75%, 84%, and 95% (where the % refers to the cumulative percent).
- c) Interpret the nature of sediments.
- Sample of pebble grade sediments were subjected to laboratory analysis and the size of each pebbles are as follows.
 5+3+2

Sample No.	Particle Axes Pebble Grade Sediments (mm)			
	Long Axes (a)	Intermediate Axes (b)	Short Axes (c)	
1	12	9	5	
2	18	14	12	
3	62	14	8	

- a) Plot the pebble dimensional ratios on a Zingg diagram.
- b) Calculate the Krumbein Sphericity, Cailleux Flatness Indices.
- c) Analyse the result in the context of sedimentary environment.
- 3. Answer the following questions.
 - a) Mention the significance of *D*-values in sedimentological analysis.
 - b) Differentiate between *lithofacies* and *biofacies*.
 - c) What is *Stromatolite*?
