2026

M.A./M.Sc. 2nd Semester Examination

GEOGRAPHY

Paper : GEOC452X8

(Hydrological Techniques)

[Practical]

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Full Marks : 15 Time : Two Hours

The figures in the margin indicate full marks.

Group - A

Answer any *two* questions : 5×2=10

1. Construct unit hydrograph from the given discharge data for a river basin of 50 sq. km. area.

Sl. No.	Time	Discharge in Cumecs
1	6 am	1200
2	7 am	1325
3	8 am	1423
4	9 am	1479
5	10 am	1563
6	11 am	1732
7	12	1834
8	1 pm	1269
9	2 pm	1183
10	3 pm	1032
11	4 pm	931
12	5 pm	731

P.T.O.

2. Using the following temperature data, estimate the Sen's slope to determine the rate of change :

Year	T_{max} (°C)
2000	34.80
2001	33.69
2002	34.76
2003	35.52
2004	36.55
2005	37.25
2006	34.91
2007	35.76
2008	35.09
2009	36.24
2010	36.10
2011	34.48
2012	37.40
2013	34.77
2014	36.45
2015	35.86
2016	35.60
2017	35.97
2018	35.52
2019	36.93
2020	34.37

3. The precipitation data of two meteorological stations are given below. Find the change point using the double mass curve.

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Year	Rainfall for St. A (mm)	Rainfall for St. B (mm)
2001	552	636
2002	259	807
2003	980	1035
2004	383	550
2005	940	704
2006	256	1037
2007	410	719
2008	984	702
2009	536	539
2010	990	737

4. A time series of precipitation data during the monsoon season is given below. Find the flood year and drought year using standardize precipitation index.

Year	Monsoon_avg (mm)
2000	626.6
2001	626.2
2002	651.8
2003	627.5
2004	595.1
2005	776.1
2006	747.5
2007	618.4
2008	585.4
2009	529.8
2010	904.3
2011	633
2012	458
2013	745.3
2014	398.8

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P.T.O.

Group - B

5. Laboratory notebook and viva-voce 5

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