

2022

GEOGRAPHY — HONOURS

Paper : CC-7

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Use of Scientific Calculators is Allowed in this Examination / Paper.

Group – A

Answer *any five* of the following questions.

1. Differentiate between raw data and grouped data. 2
2. Explain the meaning of Universe in Statistics. If the standard deviation is 15 and the mean is 50, find the C.V of the distribution. 1+1
3. A mineral is drawn from a bag that contains two minerals — Calcite and Tourmaline. The probability of choosing a Calcite mineral specimen is $\frac{2}{9}$. If the total number of Calcite and Tourmaline specimens in the bag together is 36, find the number of Tourmaline specimens. 2
4. How does the relationship between mean, median and mode of a frequency distribution determine the nature of skewness? 2
5. Determine the missing frequency (p) when the mean of the distribution is 50, $\Sigma f = 39 + p$ and $\Sigma fx = 2085 + 5p$. 2
6. What are partition values and how are they represented diagrammatically? 2
7. Given the following data series representing amount of rainfall in cms for 10 years : 110, 97, 95, 105, 90, 107, 100, 102, 98, and 93; determine the measure of Central Tendency which is also a partition value. 2

Please Turn Over

Group – B

Answer **any four** of the following questions.

8. Prepare a frequency distribution table from the given data in Table 1 and determine the percentage of Villages with population between 3000 to 4000 persons. 3+2

Table 1

Population	Number of Villages
<500	20
<1000	50
<1500	110
<2000	240
<2500	410
<3000	650
<3500	840
<4000	1020
<4500	1170
<5000	1200

9. What are the different sources of geographical data? 5
10. Compute the value of Spearman's Rank Correlation Coefficient between marks obtained in Theory and Practical with the following data and interpret the nature of relationship between them. 5

Table 2

Students	Marks in Theory	Marks in Practical
A	85	93
B	60	75
C	73	65
D	40	50
E	90	80

11. Explain the advantages of 'Relative Measures of Dispersion' over the 'Absolute Measures of Dispersion'. State any two properties of a Normal Distribution. 3+2
12. Explain the characteristics of different scales of measurement with suitable examples. 5
13. What is the difference between census enumeration and data obtained from sample survey? 5
14. (a) What do you mean by 'critical value' in test of significance?
- (b) In an analysis of GDP and CO₂ emissions for 10 countries, it was found that the Pearson's correlation coefficient r is 0.88. Test the hypothesis that the computed correlation coefficient is significantly different from zero at 1% level of significance. (Refer to Supplied Table A1 – Critical Value of Student's 't') 1+4

Group – C

Answer *any two* of the following questions.

15. Define statistics. What is the difference between statistics in singular and plural sense? Discuss the significance of statistics for geographical studies. 2+2+6
16. (a) What is null hypothesis?
- (b) A random sample of 300 people revealed the following details regarding distribution of Educational Attainment Levels by Marital Status (Table 3). Using Chi-square test determine whether there is any relationship between Marital Status and the level of educational attainment and whether the relationship is significant at 1% level of significance. (Refer to Supplied Table A2 — Critical Values of Chi-Square). 2+8

Table 3 : Educational Attainment Levels and Marital Status of Population

Marital Status	Graduate	Middle & Secondary	Elementary	Total
Never Married	36	36	18	90
Married	102	36	12	150
Widowed / Divorced	32	18	10	60
Total	170	90	40	300

17. (a) What do you mean by secular trend in time series data analysis?
- (b) On the basis of data provided in Table 4, draw a time series graph to show food production. Compute and draw the trend by four years moving average. 2+(2+6)

Table 4 : Foodgrain Production

Year	Foodgrain production in '000 metric tons
2010-11	208.60
2011-12	217.28
2012-13	230.78
2013-14	234.47
2014-15	218.11
2015-16	244.49
2016-17	259.29
2017-18	257.13
2018-19	265.04

18. (a) Define independent and dependent variables with suitable examples.

(b) From the following data in Table 5, find the regression equation required for estimation of 'y'.

2+8

Table 5 : Irrigated Area and Cropping Intensity

Block	Irrigated Area(%)	Cropping Intensity(%)
Rajnagar	38	106
Md. Bazar	43	116
Suri-I	51	123
Dubrajpur	51	131
Rampurhat-I	63	133
Nalhati-I	51	156
Suri-II	69	179
Nalhati-II	68	213

14(b).

Table A1 – Critical Value of Student's 't'

Degrees of Freedom	Significance level (one-tailed)				
	0.05	0.025	0.01	0.005	0.00005
	Significance level (two-tailed)				
	0.1	0.05	0.02	0.01	0.001
1	6.31	12.71	31.82	63.66	636.62
2	2.92	4.30	6.97	9.93	31.60
3	2.35	3.18	4.54	5.84	12.92
4	2.13	2.78	3.75	4.60	8.61
5	2.01	2.57	3.37	4.03	6.86
6	1.94	2.45	3.14	3.71	5.96
7	1.89	2.37	3.00	3.50	5.41
✓ 8	1.86	2.31	2.90	<u>3.35</u>	5.04
9	1.83	2.26	2.82	3.25	4.78
10	1.81	2.23	2.76	3.17	4.59
11	1.80	2.20	2.72	3.11	4.44
12	1.78	2.18	2.68	3.05	4.32
13	1.77	2.16	2.65	3.01	4.22
14	1.76	2.15	2.62	2.98	4.14
15	1.75	2.13	2.60	2.95	4.07
16	1.75	2.12	2.58	2.92	4.01

16(b).

Table A2 – Critical Values of CHI-Square

Values of χ^2 with probability P of being exceed in random sampling v = number of degrees of freedom.					
P \ v	0.20	0.10	0.05	0.02	0.01
1	1.64	2.71	3.84	5.41	6.63
2	3.32	4.61	5.99	7.82	9.21
3	4.64	6.25	7.81	9.84	11.34
4	5.90	<u>7.78</u>	9.49	11.67	<u>13.28</u>
5	7.29	9.24	11.07	13.39	15.09
6	8.56	10.64	12.59	15.03	16.81
7	9.80	12.02	14.07	16.62	18.48
8	11.03	13.36	15.51	18.17	20.09
9	12.24	14.68	16.92	19.68	21.67
10	13.44	15.99	18.31	21.16	23.21