

Annexure No.	20 F
SCAA Dated	29.02.2008

BHARATHIAR UNIVERSITY, COIMBATORE

For B.Sc Geography

(For the students admitted from 2008 – 2009 onwards)

Semester I: Group B : Allied A

Title of the paper: STATISTICS FOR GEOGRAPHY – I

Subject Description: This course introduces statistical tools for the students of Geography

Goal : To enable the students to learn the techniques of Statistics and their applications in Geography

Objective : On successful completion of this course the students shall enrich the techniques of Statistics and enable them to draw various diagrams, to solve numerical problems

Unit I

Meaning and Scope of Statistics - Collection of data — Primary and Secondary – Methods of Primary data collection – Sources of Secondary data - Classification and Tabulation

UNIT II

Formation of Frequency distribution – Presentation of data by Diagrams and Graphs - Bar diagram, Pie diagram, Pictogram and Cartogram – Histogram, Frequency polygon, Frequency curve and Ogives.

UNIT III

Measures of Central tendency – Mean, Median, Mode, Geometric Mean and Harmonic Mean – their computation – merits and demerits

UNIT IV

Measures of Dispersion – Range, Quartile Deviation, Mean Deviation, Standard Deviation and Co-efficient of Variation.

Skewness – Meaning – Measures of Skewness – Karl Pearson's and Bowley's co-efficient of Skewness

Unit V

Curve fitting – Principles of Least squares – Fitting of Straight line – Fitting of Parabola - Fitting of power curves

Books Recommended:

1. Statistical Methods : S.P. Gupta
2. Business Mathematics and Statistics : P. Navaneetham
3. Statistics : R.S.N. Pillai and V. Bagavathi
4. Statistics-Theory, Methods & Application: D.C. Sancheti and V.K. Kapoor
5. Applied General Statistics : Frederick E.Croxton and Dudley J. Cowden

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B.Sc Geography

Semester II : Group B: Allied A
Subject Title: STATISTICS FOR GEOGRAPHY – II

Subject Description : This course introduces statistical tools for the students of Geography

Goal : To enable the students to learn the techniques of Statistics and their applications in Geography

Objective : On successful completion of this course the students shall enrich the sampling techniques and solving problems in Tests of significance and Design of Experiments

UNIT I :

Correlation – Meaning and Definition – Types of Correlation - Scatter diagram, Karl Pearson's co-efficient of Correlation - Spearman's Rank Correlation – Concept and Simple problems

Regression Analysis – Meaning of regression and linear prediction – Regression in two variables – Simple problems

UNIT II:

Sampling – Methods of Sampling – Simple random sampling, Stratified random sampling, Systematic random sampling and Cluster sampling – Sampling and Non-sampling errors

UNIT III:

Testing of Hypothesis – Tests based on Large samples – Means, Proportions – Tests based on t, Chi-square and F distribution

UNIT IV:

Time Series – Meaning and Components– Methods of estimating trend – Graphic, Semi-average, Moving average and Method of Least squares – Seasonal Variation – Method of Simple average.

Unit V:

Analysis of variance – One way and two way classifications-Design of Experiments – Principles of Experimentation – Completely Randomized Design and Randomized Block Design

Books for study:

1. Statistical Methods by S.P. Gupta
2. Business Mathematics and Statistics by P. Navaneetham
3. Statistics by R.S.N. Pillai and V. Bagavathi
4. Statistics-Theory, Methods & Application by D.C. Sancheti and V.K. Kapoor
5. Applied Statistics by S.C. Gupta

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B.Sc. DEGREE EXAMINATION
Part III - Geography
Allied : STATISTICS FOR GEOGRAPHY - I

Time : Three hours

Maximum : 100 marks

SECTION A – (10 X 1 = 10 marks)Answer **ALL** the questions

1. Data originally collected for an investigation is known as
 (a) secondary data (b) primary data (c) grouped data (d) sources of data
2. The heading of row in a statistical table is known as
 (a) Stub (b) Caption (c) Title (d) all the above
3. Bar diagrams are ----- dimensional diagrams
 (a) One (b) Two (c) Three (d) None
4. Statistical facts presented through maps are called
 (a) Pie diagram (b) Pictogram (c) Cartogram (d) Bar diagram
5. The arithmetic mean of 45, 50, 55, 60, 40 is
 (a) 40 (b) 42 (c) 45 (d) 50
6. Co-efficient of quartile deviation is calculated by
 (a) $\frac{Q_3 - Q_1}{2}$ (b) $\frac{Q_3 + Q_1}{2}$ (c) $\frac{Q_3 - Q_1}{Q_3 + Q_1}$ (d) $\frac{Q_3 + Q_1}{Q_3 - Q_1}$
7. The root mean square deviation is
 (a) M.D. (b) S.D. (c) Q.D. (d) Range
8. If the value of the mean is greater than the mode, the skewness is
 (a) Positive (b) Negative (c) No skewness (d) None
9. The number of Normal equations to fit a straight line is
 (a) 1 (b) 2 (c) 3 (d) None
10. In curve fitting to solve the constants we use
 (a) ordinary equations (b) Partial equations (c) Normal equations (d) None

SECTION B - (5 X 6 = 30 marks)Answer **ALL** the questions

11. (a) What is Secondary data? What are the sources of collecting secondary data? (or)
 (b) Explain various parts of a table.
12. (a) What are the advantages of diagrammatical representation (or)
 (b) Draw a Bar diagram to the following data

Year :	1995	1996	1997	1998	1999
Profit :	15000	18000	20000	16000	25000
13. (a) What are the properties of a good average (or)
 (b) Calculate mean from the following data

Marks :	0 – 10	10 – 20	20 – 30	30 – 40	40 - 50
No.of students:	5	10	20	8	2
14. (a) Calculate Standard deviation from the following data : 5, 8, 10, 12, 18, 20 (or)
 (b) Describe Skewness. What are the various measures of Skewness

15. (a) What is Curve fitting? Give the normal equations for fitting a parabola
(or)

(b) Fit a Straight line trend to the following data

X	:	1	2	3	4	5
Y	:	10	12	16	20	24

SECTION C - (5 X 12 = 60 marks)

Answer **ALL** the questions

16. (a) What is Primary data ? Explain various methods of collecting primary data.
(or)

(b) Explain the types of Classification with examples

17. (a) Draw a Pie diagram to the following data

Items	:	A	B	C	D	E	F
Expenditure	:	87	24	11	13	25	20

(or)

(b) Draw Ogives and find the value of the median graphically

Wages	:	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of Employees:		5	8	20	10	7

18. (a) Calculate Co-efficient of variation of the following distribution

C.I.	:	30-40	40-50	50-60	60-70	70-80
F	:	30	40	50	40	30

(or)

(b) Compute G.M.

C.I	:	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
F	:	10	15	18	7	10

19 (a) Who is more consistent player?

X :	45	55	56	58	60
Y :	56	50	48	60	62

(or)

(b) Calculate Bowley's co-efficient of skewness.

C.I	:	4 – 8	8 – 12	12 – 16	16 – 20	20 – 24	24 – 28
F	:	6	10	18	30	24	12

20. (a) Explain how to fit a curve of the type (i) $y = ab^x$ (ii) $y = ae^{bx}$

(or)

(b) Fit a second degree parabola to the following data

X	:	0	1	2	3	4
Y	:	5	8	10	12	16

(For the candidates admitted from 2008 – 2009 onwards)

B.Sc. DEGREE EXAMINATION
Part III - Geography
Allied : STATISTICS FOR GEOGRAPHY - II

Time : Three hours

Maximum : 100 marks

SECTION A – (10 X 1 = 10 marks)

Answer **ALL** the questions

1. The Co-efficient of correlation lies between
 (a) 0 and 1 (b) 1 and 2 (c) -1 and +1 (d) 0 and -1
2. Rank correlation co-efficient was developed by
 (a) Pearson (b) Spearman (c) Fisher (d) none of these
3. Random sampling methods are also known as
 (a) Probability sampling methods (b) Judgement sampling methods
 (c) Cluster sampling methods (d) None of the above
4. Sampling errors are present only in
 (a) Complete enumeration survey (b) Sample survey
 (c) Both census and sample survey (d) Neither sample nor census survey
5. For Large sample tests the sample size should be
 (a) > 30 (b) < 30 (c) ≥ 30 (d) ≤ 30
6. To test the equality of population variances we use
 (a) Chi-square distribution (b) t distribution (c) F distribution
 (d) Normal distribution
7. The most important factors causing seasonal variations are
 (a) Growth of population (b) Technological improvements
 (c) Weather and social customs (d) Changes in fashion
8. The number of phases in a business cycles is
 (a) 1 (b) 2 (c) 3 (d) 4
9. The CRD is appropriate only when the experimental material is
 (a) homogeneous (b) heterogeneous (c) non-homogeneous (d) none
10. In RBD if there are t treatments and r blocks the error degrees of freedom is give by
 (a) $(t-1) + (r-1)$ (b) $(t-1) - (r-1)$ (c) $(t-1) (r-1)$ (d) $(t-1) / (r-1)$

SECTION B - (5 X 5 = 25 marks)

11. (a) What is Scatter diagram? What are the advantages of Scatter diagram? (or) (b)
 What are the properties of Regression co-efficients?
12. (a) Explain Census method and Sample method (or)
 (b) Describe Cluster sampling
13. (a) A random sample of 900 items is found to have a mean of 65.3 cm. Can it be regarded as a sample from a large population whose mean is 66.2 and standard deviation is 5cm. Use 5% level of significance
 (or)
 (b) How will you test the equality of population variances using F test?
14. (a) What is Time Series analysis? What are the uses of Time Series analysis? (or)
 (b) Calculate trend by four year moving average method of the following data

- | | | | | | | | | | |
|--|-------------|------|------|------|------|------|------|------|------|
| | Year : | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
| | Production: | 600 | 620 | 650 | 680 | 680 | 660 | 700 | 720 |
15. (a) Explain the principles of Experimentation (or)
 (b) Give the Analysis of One way classification

SECTION C - (5 X 8 = 40 marks)

16. (a) Calculate Karl Pearson's Co-efficient from the following data
- | | | | | | | | |
|---|---|----|----|----|----|----|----|
| X | : | 40 | 38 | 43 | 45 | 37 | 43 |
| Y | : | 10 | 12 | 13 | 12 | 16 | 15 |
- (or)
- (b) Obtain two regression equations and also estimate 'x' when y = 26.
- | | | | | | | | | |
|-----|----|----|----|----|----|----|----|----|
| X : | 10 | 12 | 13 | 17 | 18 | 20 | 24 | 30 |
| Y : | 5 | 6 | 7 | 9 | 13 | 15 | 20 | 21 |
17. (a) Explain any two methods of selecting Simple random sampling (or)
 (b) What is Stratified sampling? Give its merits and demerits
18. (a) Ten objects are chosen at random from a large population and their weights are found to be in gms: 63, 63, 64, 65, 66, 69, 69, 70, 70, 71. Discuss whether the above sample has come from a population with mean 65?
 (or)
 (b) The following table gives the number of aircraft accidents that occurred during the various days of the week. Find whether the accidents are uniformly distributed over the week?
19. (a) Fit a straight line trend by the Method of Least squares. Estimate the production for the year 2005.
- | | | | | | | | |
|-------------|------|------|------|------|------|------|------|
| Year : | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
| Production: | 12 | 10 | 14 | 11 | 13 | 15 | 16 |
- (or)
- (b) Calculate Seasonal indices for the following data by simple average method
- | Year | Quarter | | | |
|------|---------|-----|-----|-----|
| | I | II | III | IV |
| 1984 | 3.7 | 4.1 | 3.3 | 3.5 |
| 1985 | 3.7 | 3.9 | 3.6 | 3.6 |
| 1986 | 4.0 | 4.1 | 3.3 | 3.1 |
| 1987 | 3.3 | 4.4 | 4.0 | 4.0 |
20. (a) What is RBD? Explain how will analyze a RBD? (or)
 (b) Data recorded the yield of wheat for three varieties A, B, C are given below. Draw your conclusions on the differences in the mean yield of wheat varieties

	A	B	C
	55	70	62
	65	66	52
	60	65	49
	62	68	48