BACS32 — STATISTICAL METHODS AND THEIR APPLICATIONS I

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Give the scope of statistics.

2. Data Set:2,2,3,4,5,5,5,6,7,8,8,8,8,8,9,9,10,11,11,12. What is the percentile ranking of '10'.?

3. What is the average test score for the class, if 5 students received scores of 92,81,45,95 and 68?

4. Define Harmonic Mean.

5. Calculate variance of the following data

Class interval	frequency
4-8	3
8-12	6
12-16	4
16-20	7

6. In (4,6,9,3,7) the lowest value is 3 and the highest value is 9. Find the Range.

7. What does negative skewness mean.?

8. Define co-efficient of Kurtosis.

9. Give few special features of concurrent deviation methods.

10. Write the simple regression equation.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Darrita and Jenine played 40 games of golf together. The table below shows Darrita's scores.

Score (x)	$70 < x \le 80$	$80 < x \le 90$	$90 < x \le 100$
Frequency	1	4	15

Score (x)	$100 < x \le 110$	$110 < x \le 120$
Frequency	17	13

Draw a cumulative frequency diagram to show Darrita's scores.

Or

(b) Write about classification of data with examples.

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(b) From the following data given below, calculate the value of kurtosis and find out the nature of distribution:

X: 0-10 10-20 20-30 30-40 40-50

f: 5   10   15   10   5

15. (a) The table below shows the height, x, in inches and the pulse rate, y, per minute, for 7 people. Find the correlation coefficient and the interpret your result.

X: 54 55 66 74 87 62 56

Y: 78 76 90 74 78 100 90

Or

(b) Write the elements of simple regression equation.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe about the graphical determination of Deciles and Percentiles with sample values.

17. Show how to find Geometric mean and Harmonic Mean with sample data.

18. Life of bulbs produced by two factories A and B are given below.

Length of life (in hours)	Factory A (Number of bulbs)	Factory B (Number of bulbs)
550-650	10	8
650-750	22	60
750-850	52	24
850-950	20	16
950-1050	16	12
	120	120

The bulbs of which factory are more consistent from the point of view of length of life?

19. Compute the Karl Pearson's coefficient of skewness from the following data.

Height (in inches)	Number of Persons
58	10
59	18
60	30
61	42
62	35
63	28
64	16
65	8

20. Two commentators gave ratings out of 100 for given sports personalities the ratings are shown in the table below:

Personality	A	B	C	D	E	F	G
Commentators-1	73	76	78	65	86	82	91
Commentators-2	77	78	79	80	86	89	95

Calculate

(a) Spearman's rank correlation coefficient.

(b) State what your answer tells you about the ratings given by the 2 commentators.

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12. (a) The runs scored in a cricket match by 11 players is as follows:

$$7,16,121,51,101,81,1,16,9,11,16.$$

Find the mean, median and mode.

Or

(b) What is the geometric mean of $1/2, 1/4, 1/5, 9/72$ and $7/4$?

13. (a) The following are the number of jobs a sample of 6 people applied for. Find the mean, variance and standard deviation $17, 15, 23, 7, 9, 13$.

Or

(b) Define Range and Quartile deviation.

14. (a) Calculate appropriate measure of skewness from the following income distribution based on quartiles and median

Monthly income (Rs.)	Frequency
upto-100	9
101-150	51
151-200	120
201-300	240
301-500	136
501-750	33
751-1000	9
above 1000	2
N=600	

Or