

B.Com. DEGREE EXAMINATION NOVEMBER 2009
COMMERCE
THIRD SEMESTER

COURSE : **ALLIED – CORE**
PAPER : **BUSINESS MATHEMATICS AND STATISTICS**
TIME : **3 HOURS** **MAX. MARKS: 100**

SECTION – A

ANSWER ALL QUESTIONS: (10 x 3 = 30)

1. Briefly explain the various parts of the table.
2. Explain the term classification of statistical data. What are the types of classification.
3. Draw a pie diagram from the following data:

Expenditure	Food	Clothing	Housing	Fuel	Miscellaneous
% of amount spent	20	16	30	18	16

4. Estimate the production corresponding to the fertilizer application of 100 kg per acre from the following data.

	Fertilizer application per acre	Production per acre
Average	80	47
S.D.	12.5	7.8

5. The mean wages of 150 workers in a factory is Rs 85/-. If the arithmetic mean of 80 workers in one section is Rs 92 calculate the arithmetic mean of the other section.
6. Find out the probable error and state if it is significant or not when $r = 0.23$ for 25 observations.
7. Solve : $6x^2 - x - 35 = 0$
8. Find the sum of the series $3 + 7 + 11 + \dots$ to 40 terms.
9. The adulterated milk of 20 litres contains $6\frac{1}{4}$ litres of pure milk. Find the ratio of pure milk to water in the mixture
10. In how many ways can 5 boys and 2 girls can be arranged along a round table so that no 2 girls are together?

SECTION – B

ANSWER ANY FIVE QUESTIONS:

(5 x 8 = 40)

11. Find median graphically from the following data and verify your answer algebraically.

Marks	0 -10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of students	2	3	5	15	18	26	20	8	2	1

12. Calculate rank correlation from the following data.

X	22	28	31	23	29	31	27	22	31	18
Y	18	25	25	37	31	35	31	29	18	20

13. Find Karl Pearson s correlation for the following data

X	10	15	35	40	50
Y	100	90	110	80	120

14. The data relating to monthly production of a product in 2 factories are given below. Find out which factory is more consistent .

A	30	50	45	54	49	53	60	46	41	56	59	45
B	70	120	20	15	150	100	90	80	10	25	95	85

15. a. Solve $2/x + 3/y = 2$

$$5/x + 8/y = 5 \frac{1}{6}$$

b. The difference between two numbers is 3 and the difference between their squares is 33. Find the numbers.

16. a. In an examination paper there are 7 questions in Part A out of which any 4 are to be attempted and there are 6 questions in part B out of which 3 are to be attempt. In how many different ways can a candidate answer part A and part B in full.

b. Find the three consequent numbers in GP such that their sum is 21 and the sum of their squares is 189.

17. a. Five persons are to address a meeting. If a specified person A is to speak before another specified person B , find the number of ways in which this could be arranged. Also find in how many of these arrangements will B comes immediately after A?

b. Find 3 terms in G.P if their sum is 26 and their product is 216.

SECTION – C

ANSWER ANY TWO QUESTIONS:

(2 x 15 = 30)

18. Calculate mode from the following data. Use grouping table and analysis table.

Daily Wages	0-10	10 -20	20-30	30-40	40-50	50-60	60-70	70-80
No. of workers	4	5	15	9	11	14	8	13

Daily Wages	80-90	90-100
No. of workers	7	8

19. The test scores and sales done by 10 selected salesmen of a company shows the following data.

Test score	55	65	75	60	74	85	70	73	80	65
Sales (in '000)	74	82	94	78	85	96	84	89	90	75

Fit regression equation of test score on sales and regression equation of sales on test score. Estimate sales for test score of 50 and estimate the test score when the sales is 80,000

20. a. A person is appointed on a basic salary of Rs 1000 a month and gets an increment of Rs 50 every year. He contributes 10% of his salary to provident fund. What will be the total contribution to provident fund during his 25 years of service?

b. Find the principal for which the difference of simple interest and compound interest for 2 years is Rs 20 at 4%.

21. a. A sum of money put out at compound interest amounts in 2 years to Rs 2,809 and in three years to Rs. 2,977.54. Find the rate of interest and the original sum

b. Find the sum to n terms of the series $5 + 55 + 555 + \dots$

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