END TERM EXAMINATION

SECOND' SEMESTER [B.COM. (HONS.)] JUNE 2024

Paper Code: B.COM-108	Subjects: Business Statistics(c)
Time: 3 Hours	Maximum Marks: 60

Note: Attempt any five questions. All questions carry equal marks.

Q1. **a)** From the following information find out
  i) Which of the factory pays larger amount as daily wages
  ii) What is the average daily wage of the workers of two factories

	Factory A	Factory B
Number of Wage Earners	250	200
Average Daily Wages	Rs. 20	Rs. 25

(4)

b) What are the mathematical properties of Arithmetic Mean. Explain its advantages and disadvantages **(4)**

c) The following table gives the ages in years of 800 persons. Find out the median age.

Age (in Years)	20-60	20-55	20-40	20-30
No. of Persons	800	740	400	120
Age (in Years)	20-50	20-45	20-25	20-35
No. of Persons	670	550	50	220

(4)

Q2. **a)** The mean of 5 observations is 4.4 and the variance in 8.24. If three of the five observations are 1, 2, and 6, find the other two. **(4)**

b) If the S.D. of a series is 7.5, find the most likely value of mean deviation. **(4)**

c) For a group of 50 male workers the mean and standard deviation of their weekly wages are Rs. 63 and Rs. 9 respectively. For a group of 40 female workers, these measures are respectively Rs. 54 and Rs. 6. Find the S.D. for the combined group of 90 workers. **(4)**

Q3. **a)** Find the probability of getting the sum of 9 or 11 in a single throw of two dice.

b) From a set of 17 cards numbered 1to 17, one is drawn at random. Show that the chance that its number is divisible by 3 or 7 is 7/17.

c) A student applies for a job in two firms X and Y. The probability of his being selected in firm X is 0.7 and being rejected in firm Y is 0.5. The probability of at least one of his application being rejected is 0.6. What is the probability that he will be selected in one of the firms?

(4x3=12)

Q4. **a)** The mean and SD of a binomial distribution are 20 and 4 respectively. Calculate n, p, q.

b) A company makes electric toys. The probability that an electric toy is defective is 0.01. What is the probability that the shipment of 300 toys will contain exactly 5 defective toys (use poisson distribution).

c) In a normal distribution, 31% of the items are under 45 and 8% are over 64. Find the mean and standard deviation of the distribution.

(4x3=12)

P.T.O

Q5. The ranks of 16 students in tests in 'Mathematics' and 'Statistics' were as follows.

(1,1), (2,10), (3,3), (4,4), (5,5), (6,7), (7,2), (8,6), (9,8), (10,11), (11,15), (12,9), (13,14), (14,12), (15,16), (16,13)

The two numbers within the brackets denotes the ranks of the same student in Mathematics and Statistics respectively. **(4x3=12)**

a) Calculate the rank correlation coefficient for proficiencies of this group in Mathematics and Statistics

b) What does the value of the coefficient obtained indicates?

c) If you had found out Karl Pearson's coefficient of correlation between the ranks of these 16 students would your result be the same as obtained in this case or different?

Q6. Equations of two regression lines are **(4x3=12)**

$$4x + 7y+7 = 0 \quad \text{and} \quad 3x+4y+8=0$$

Find:

a) Mean of x and y

b) Regression coefficients b_{yx} and b_{xy}

c) Correlation coefficient between x and y

Q7. What are Index numbers? Explain any two methods of constructing Index Numbers with example. **(12)**

Q8. Fit a straight-line trend on the following data using the Least Squares Method.

Period (year)	1996	1997	1998	1999	2000	2001	2002	2003	2004
Y	4	7	7	8	9	11	13	14	17

(12)

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