

End Semester/Reappear (Semester IV) Examination June 2022

Programme: BBA
Subject: Quantitative Techniques for Business
Subject Code: 11.252
Enrollment No: _____

Full Marks: 70
Time: 3 Hrs.

Section I

1. Short Answer type questions. Answer any four.

4 x 5 = 20

- a. What is probability distribution? Explain with example.
- b. Explain Bayes' Theorem and prove it.
- c. Find the Quartiles of the following no. – 29, 12, 19, 24, 36, 21, 33, 35
- d. Prove that $r = \sqrt{b_{xy} \times b_{yx}}$
- e. Write the regression equation and regression coefficient of X on Y and Y on X
- f. What are the uses and limitations of Index Number?

Section II

Long Answer type questions. Answer any three.

3 x 10 = 30

2. Urn A contains 2 white, 1 black and 3 red balls, urn B contains 3 white, 2 black and 4 red balls and urn C contains 4 white, 3 black and 2 red balls. One urn is chosen at random and 2 balls are drawn at random from the urn. If the chosen balls happen to be red and black, what is the probability that both balls from urn B?
3. The expenditure of 1000 families is given as :-

Expenditure	40 - 59	60 - 79	80 - 99	100 - 119	120 - 139
No. of family	50	?	500	?	50

The median and mean for the distribution are both Rs 87.50. Calculate the missing Frequency.

4. Three judges A, B, C give the following ranks. Find which pair of judges has common approach.

A:	1	6	5	10	3	2	4	9	7	8
B:	3	5	8	4	7	10	2	1	6	9
C:	6	4	9	8	1	2	3	10	5	7

5. Construct index numbers of price from the following data by applying:

- a) Laspeyres' method
- b) Paasche's method

Commodity	2007		2008	
	price	Quantit y	Price	Quantit y
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

6. Construct a consumer price index number from the table given below: -

Group	Index for 2003	Expenditure
Food	550	46%
Clothing	215	10%
Fuel and lighting	220	7%
House rent	150	12%
Miscellaneous	275	25%

Section III

Application based questions. Answer any one.

1 x 20 = 20

7. a) The regression coefficient of y on x and x on y are 1.2 and 0.3 respectively. Find the coefficient of correlation.
 b) If $\sigma_x = 10$, $\sigma_y = 12$, $b_{xy} = -0.8$, find the value of r.
 c) If $\bar{x} = 6$, $\bar{y} = 7$, $b_{xy} = 0.65$ and $b_{yx} = 0.45$, then find the regression equations.
 d) Define Regression and Correlation.
8. a) Find the mean, variance and standard deviation of the number of heads in a simultaneous toss of three coins.
 b) If a pair of dice is thrown and X denote the sum of the numbers on them. Find the probability distribution of X. Also, find the expectation X.
9. a) Calculate mean deviation from median from the following data: -

Variable	0	1	2	3	4	5	6	7	8	9
Frequency	15	46	91	162	110	95	82	26	13	2

- b) Explain the relationship between Mean, Median and Mode.
