



Bc/BC/C22

2026

(FYUGP)

(8th Semester)

COMMERCE

(MAJOR)

Paper : BC/C22

(Statistical Analysis)

Full Marks : 75

Pass Marks : 40%

Time : 3 hours

*The figures in the margin indicate full marks
for the questions.*

1. (a) Define probability. Explain unconditional and conditional probability. Derive Bayes' theorem and explain its implication in business decision making.

15

Or

- (b) (i) A problem in Statistics is given to 5 students. Their chances of solving it are $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{6}$. What is the probability that the problem will be solved?

8

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(Turn Over)

- (ii) A bag contains 5 white and 3 black balls. 2 balls are drawn at random one after the other without replacement. Find the probability that both balls drawn are black. 7

2. (a) What is sampling? Discuss the different types of sampling methods and explain the steps involved in selecting a random sample. 15

Or

- (b) The number of heart patients coming to a multispeciality hospital for 10 days is given below.
37, 42, 19, 27, 29, 19, 42, 35, 39, 41
Use this information to get a 95% confidence interval, estimate for the average number of heart patients to the hospital on any day.
3. (a) What is hypothesis? Explain the types of errors and procedure of testing hypothesis. 3+6+6=15

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(Continued)

Or

- (b) In a random sample of 200 persons of a town, 120 are found to be smokers. In a sample of 500 persons from another town, 240 are found to be smokers. Test the hypothesis that the proportion of the smokers in both the town are equal at 5% level of significance. 15

4. (a) Explain the concept and types of factorial experiments. 5+10=15

Or

- (b) A certain drug is claimed to be effective in curing colds. In an experiment on 328 people with colds, half of them were given the drugs and half of them given the sugar pills. The patients reaction to the treatment are recorded in the following table. Test the hypothesis that the drugs is no better than sugar pills in curing colds : 15

	Helped	Harmed	No effect
Drug	104	20	40
Sugar pill	88	24	52

[For $V = 2$, $\chi^2_{0.05} = 5.99$]

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(Turn Over)

5. (a) (i) Calculate Pearson's coefficient of correlation from the following data : 10

X : 10 20 30 40 50
Y : 12 18 28 35 45

- (ii) Calculate Spearman's rank correlation coefficient from the following data : 5

Students	:	A	B	C	D	E
Mark in Test I	:	78	85	70	90	82
Mark in Test II	:	80	88	72	92	84

Or

- (b) Find the regression equation of Y on X and X on Y from the following data and estimate Y, when X = 25 : 15

X : 10 15 20 30 40
Y : 12 18 25 35 48

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