

B.B.A. Semester - 4 (CBCS) Examination
April/May -2022 [NEW COURSE]
Statistics for Business Decision Making (Allied)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1(A) Explain the following. (07)

- (1) Parameter and statistics.
- (2) Standard error.
- (3) Level of significance.

Q.1(B) Explain the following (07)

- (1) Null hypothesis.
- (2) Alternate hypothesis.
- (3) One tail test and two tail test.

OR

Q.1(A) A random sample of 100 students of a class who had secured marks in statistics. (07)
 Gave the following marks distribution.

Marks	35-45	45-55	55-65	65-75	75-85
No. of students	10	25	20	35	10

A professor of statics claimed that the capacity of student's security marks in statistics is not on an average more than 60.

Test claim of professor of 5% level of significance.

Q.1(B) In one district of state 48 persons were found as dengue patients out of a sample of (07)
 800 persons. In another district 66 persons were dengue patients in sample of 1200 persons. It is known that the percentage of dengue patients in state is 6%. Can it be concluded that the proportion of dengue patients in two districts is same?

Q.2(A) What is pair t-test? Explain how it can apply? (07)

Q.2(B) The population of Nicotine in milligrams in two samples of tobacco are given below. (07)

Sample I	24	27	26	21	25	
Sample II	27	30	28	31	32	36

Can it be said that the means of the two samples differ significantly?

OR

Q.2(A) Give difference between t-test and f-test. (07)

Q.2(B) Test variability of two samples is same or not. (07)

Sample	Size	Sample mean	Sum of square of deviations from the mean
1	10	12	120
2	12	15	314

Q.3(A) What is business forecasting? Explain its importance. (07)

Q.3(B) Explain the method of input – output analysis. Give its assumptions. (07)

OR

Q.3(A) Taking $\alpha=0.6$ and initial forecast as 200 determine the sale for the respective years. (07)

Year	1975	1976	1977	1978	1979	1980
Sales (in lakh Rs.)	230	242	255	271	304	315

Q.3(B) Fit a second degree parabola to the following data. Estimate the population of 1981. (07)

Year	1974	1975	1976	1977	1978	1979	1980
Population (in lakhs)	6	8	10	12.5	15	18	21

Q.4(A) What is statistical decision theory? (07)

Q.4(B) What do you mean by 'EMV'? is it necessary to take a decision? (07)

OR

Q.4(A) A business man has three alternatives open to him each of which can be followed by any of the four possible events. The conditional pay offs (in Rs.) for each action events combination are given below. (07)

Alternatives	Pay- offs conditional on events.			
	A	B	C	D
A1	6	0	-10	6
A2	-4	12	18	-2
A3	14	6	0	8

Determine which alternative should business choose, if he adopts the

- (1) Maximin principle (2) Maximum principle (3) Hurwicz principle ($\alpha = 0.7$)
(4) Laplace principle (5) Minmax regret principle

Q.4(B) A manufacturer finds from the past data, that the cost of product is Rs. 10 per unit and its selling price of product is Rs. 30, if it is sold within a week and it becomes useless at end of week. (07)

Weekly sales	10	20	30	40	50
No. of weeks	5	15	15	10	5

How many units should be manufactured per week to maximize profit?

Q.5(A) What do you understand by statistical quality control? How it is useful in industry? (07)

Q.5(B) Explain theory of run. (07)

OR

Q.5(A) The following table gives mean and range of 10 samples each of size 5 draw mean and range charge from the following data and about your production process. (07)

Mean	100	125	90	95	96	94	85	80	120	110
Range	4	8	10	10	15	11	0	2	0	12

Q.5(B) Draw an appropriate chart for following data and state about the production process. (07)

Radio number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Defect	4	8	6	2	1	3	2	4	6	5	9	7	5	8
