

B.B.A. Semester - 4 (CBCS) Examination**March/April-2024 [OLD COURSE]****STATISTICS FOR BUSINESS DECISION MAKING (ELECTIVE-1)****Time: 2:30 Hours****Marks: 70****Instructions:**

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

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

- (i) Null Hypothesis & Alternative Hypothesis.
- (ii) Type I and Type –II Error.

Que.1(B) The mean height of 50 male students who showed above average participation in college athletics was 68.2 inches with a S.D. of 2.5 inches; while 50 male students who showed no interest in such participation had a mean height of 67.5 inches with a S.D. of 2.8 inches. Test the hypothesis that male students who participate in college athletics are taller than other male students. (07)

OR

Que.1(A) Give the difference Between Large Sample Test and Small sample Test

Que.1(B) A manufacturer claimed that at least 95% of equipment which he supplied to a factory confirmed to specifications. An examination of a sample of 200 pieces of equipment revealed that 18 were faulty. Test his claim at a significance level of 1%.

Que.2(A) Explain Small sample test. (07)

Que.2(B) A random sample of 10 boys has the following IQ (07)

65, 85, 105, 110, 90, 95, 115, 104, 106, 120.
Do these data support the assumption of a population mean I.Q. 100? Also find the reasonable range in which most of mean I.Q. value of samples of 10 boys lies.

OR

Que.2(A) Explain.

- (i) Degree of freedom
- (ii) Critical value
- (iii) Level of Significance

Que.2(B) The following are samples drawn from two normal population test the hypothesis that population variance are equal?

Sample	Size	Sample Mean	Sum of square of deviation from mean
1	10	12	120
2	12	15	314

Que.3(A) What is Business forecasting? Explain its importance. (07)

Que.3(B) The price of a commodity for the years 1990 -95 are given below. fit a second degree parabola to these data. estimate the price of 1996. (07)

Year	1990	1991	1992	1993	1994	1995
Price	100	107	128	141	181	192

OR

Que.3(A) Explain moving average method.

Que.3(B) Taking $\alpha = 0.4$ and initial estimate as 400, determine the sales forecast of different years.

year	1985	1986	1987	1988	1989	1990
Sale (in lakh Rs.)	345	363	383	401	456	473

Que.4(A) What do you understand by statistical quality control? How is useful in industry? (07)

Que.4(B) Samples each of 250 radios are inspected for 12 days. The number of defective radios found in different samples are given below. prepare np chart and state your conclusion. (07)

Sample	1	2	3	4	5	6	7	8	9	10	11	12
No. of defective items	25	47	23	30	24	34	39	32	35	22	45	40

OR

Que.4(A) Give the difference between the charts for variables and charts for attributes.

Que.4(B) The following table gives the information regarding life hours of 5 fluorescent lamps of 10 different samples. Draw Mean and Range charts and state your conclusions.

Sample	1	2	3	4	5	6	7	8	9	10
Mean	3290	3180	3350	3370	3280	3240	3260	3410	3310	3510
Range	360	210	50	100	50	400	500	200	300	600

Que.5(A) Write a Short note on decision Theory. (07)

Que.5(B) Decide the best act for the following pay-off matrix by applying. (07)

- (i) Hurwize principle ($\alpha = 0.6$)
- (ii) Laplace principle
- (iii) Minmax Regret criterion

State of Nature	Act		
	A ₁	A ₂	A ₃
S ₁	1000	500	700
S ₂	2000	800	0
S ₃	1500	800	1100

OR

Que.5(A) write short notes on.

- (i) Maxi – min Principle
- (ii) Maxi-max principle

Que.5(B) The cost price of a commodity is Rs.7 per unit and its selling price is Rs.10. The commodity can be returned at Rs. 5 if it remains unsold during a day. The probability distribution of its demand is as follows. How many units of the commodity should be kept daily?

Demand of the Commodity (units)	0	1	2	3	4
Probability	0.15	0.20	0.25	0.35	0.05
