



AK-5422

Seat No. _____

Second Year B. B. A. Examination

March / April – 2016

Business Statistics

(Old Course)

Time : 3 Hours]

[Total Marks : 100

Instructions :

- (1) Attempt all **five** questions.
- (2) Figures to the right indicate marks.

1 (a) Prove that $P(A \cup B) = P(A) + P(B) - P(A \cap B)$. **10**

(b) If $P(A) = 1/3, P(B') = 1/4$ and $P(A \cap B) = 1/6$,
find $P(A \cup B), P(A' \cap B'), P(A' \cup B')$. **10**

OR

1 (a) Prove that $E(xy) = E(x)E(y)$. **10**

(b) In a normal distⁿ. 7% of the items are under 35 and 89% are under 63. What is the mean and S.D. of the distⁿ ? **10**

2 (a) Prove that mean and variance of binomial distⁿ. **10**

(b) Fit a Poisson distⁿ to the set of observations : **10**

Death :	0	1	2	3
Freq. :	59	27	9	1

OR

2 (a) Explain : Regression lines. **10**

(b) Find r **10**

$x : 0 \ 10 \ 8 \ 8 \ -1 \ 9 \ 5 \ -2$

$y : 3 \ -2 \ 1 \ 0 \ 5 \ -1 \ 2 \ 4$

3 (a) Explain : Stratified random sampling. **10**

(b) The following mistakes per page were observed in a book : **10**

No-of mistakes per page : 0 1 2 3 4

No-of pages : 211 90 19 5 0

Fit a Poisson distⁿ and test the goodness of fit.

OR

3 (a) Discuss the important theories of forecasting used in business. **10**

(b) Find $y = a + bx$ **10**

Year	:	1965	1966	1967	1968	1969	1970	1971
Profit	:	125	128	133	135	140	141	143

4 (a) Explain : Null hypothesis, Degree of freedom, Type-I and Type-II errors. **10**

(b) Intelligence test of two groups of boys and girls gives **10** the following results :

Girls: Mean = 84, S.D. = 10, N = 121

Boys: Mean = 81, S.D. = 12, N = 81

Is the difference in mean scores significant ?

OR

4 (a) Explain : Two way classification. **10**

(b) Explain : F-Test. **10**

5 (a) Explain : \bar{X} and R-Chart. **10**

(b) Using C-chart : **10**

1, 4, 3, 2, 5, 4, 6, 7, 2, 3, 2, 5, 7, 6, 4, 5, 2, 1, 3, 8

OR

5 (a) Explain : Statistical Decision theory. **10**

(b) Find EVPI : **10**

Work

Store	Prob.	D_1	D_2	D_3	D_4
S_1	0.25	50	10	60	80
S_2	0.4	0	30	45	40
S_3	0.35	80	35	30	45
