



HDA-161100010303 Seat No. \_\_\_\_\_

**B. B. A. (Sem. III) (CBCS) Examination**

November / December - 2017

**Business Statistics**

(New Course)

Time : 2½ Hours]

[Total Marks : 70

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

- 1 (a) Give the definitions of the following terms : 7  
 Equally likely events, Exhaustive events, Events.  
 (b) There are 5 white and some black balls in a bag. 7  
 Two balls are drawn from this bag. If the prob. that both  
 the balls are black is  $\frac{3}{28}$ , find the numbers of black  
 balls.

**OR**

- 1 (a) Give the definitions of the following terms : 7  
 Sample space, favourable events, different events  
 (b) For any two events  $A$  and  $B$ , 7  
 if  $2 P(A) = 3 P(B) = 5 P(A \cap B) \frac{1}{2}$ ,  
 Find  $P(A/B)$ ,  $P(A' \cap B)$ ,  $P(A' \cup B')$ .  
 2 (a) Prove that  $E(x+y) = E(x) + E(y)$  7  
 (b) In AEC company, the amount of light bill follows 7  
 normal distribution with S.D. 60, 11.31% of customers  
 pay light bill less than Rs. 260. Find average amount  
 of light bill.

**OR**

- 2 (a) Explain : Properties of Normal distribution. 7  
 (b) Mean and S.D. of a random variable  $x$  are 5 and 7  
 4 respectively. Find  $E(x^2)$ ,  $E(2x+1)^2$ .  
 3 (a) Find mean and variance of Binomial distribution. 7  
 (b) Fit a Poission distribution to the following data. 7  
 Find expected frequencies :

$x :$	0	1	2	3
$f :$	79	18	2	1

**OR**

- 3 (a) Find mean and variance of Poisson distribution. 7  
 (b) X is a binomial variate with mean 5 and variance 2.5. Find  $P(4 \leq x \leq 6)$ . 7

- 4 (a) Explain : Types of correlation. 7  
 (b) Find the correlation coefficient between the age and the playing habit of the people from the following data : 7

<i>Age group (years)</i>	<i>No. of People</i>	<i>No. of Players</i>
15 – 20	200	150
20 – 25	270	162
25 – 30	340	170
30 – 35	360	180
35 – 40	400	180
40 – 45	300	120

OR

- 4 (a) Explain : Spearman's Rank Correlation. 7  
 (b) The coefficient of rank correlation between the marks in Maths and Stat. obtained by a certain group of student is  $2/3$  and the sum of the squares of the differences in ranks is 55. Find the number of students in the group. 7

- 5 (a) Explain regression equations. 7  
 (b) From the data given below, find the two regression coefficients : 7

x :	25	28	35	32	31	36	29	38	34	42
y :	43	46	49	41	36	32	31	30	33	39

OR

- 5 (a) Explain : Properties of regression. 7  
 (b) From the data given below : 7  
 $\bar{x} = 30, \bar{y} = 35, S_x = 10, S_y = 7, r_{xy} = 0.8$   
 Find the two regression equations. Find the value of x when  $y = 40$ .