



HDA-010-001307

Seat No. _____

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

November / December - 2017

307 : Business Statistics - 1

(Old Course)

Faculty Code : 010

Subject Code : 001307

Time : $2\frac{1}{2}$ 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
Sample Space, Events, Trials.
- (b) If $P(A) = \frac{1}{3}$, $P(B') = \frac{1}{4}$ and $P(A \cap B) = \frac{1}{6}$ then find 7
 $P(A \cup B)$, $P(A' \cap B')$, $P(A'/B')$.

OR

- 1 (a) If A and B are mutually exclusive events, then 7
prove that $P(A \cup B) = P(A) + P(B)$.
- (b) A number is taken at random from the first 50 7
natural numbers. Find the prob. that the number is
multiple of 4 or 7.
- 2 (a) Prove that $E(x + y) = E(x) + E(y)$ 7
- (b) The Prob. distribution of r.v. x is as follows : 7

$x :$	0	1	2	3	4
$P(x) :$	0.1	P	0.3	P	0.1

Find P , $E(2x+1)$, $E(x+1)^2$.

OR

- 2 (a) Explain : Uses of Normal distribution. 7
- (b) For a normal distribution of 100 times $Q_1 = 73$ 7
and S.D. = 15. Find median, quartile deviation, mean
deviation.

- 3 (a) Explain : Properties of Binomial distribution. 7
 (b) With usual notations, find mean and variance of 7
 a r.v.x. if $n = 6$ and if $9p(4) = P(2)$.

OR

- 3 (a) Explain : Properties of Poisson distribution. 7
 (b) Fit a Poisson distribution to the following data : 7

$x :$	0	1	2	3	4
$f :$	122	60	15	2	1

- 4 (a) Explain : State of nature, pay-off matrix. 7
 (b) Find EOL : 7

<i>Event</i>	<i>Prob.</i>	<i>Work</i>			
		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

OR

- 4 (a) Explain : EMV, EOL. 7
 (b) Find EVPI : 7

<i>Event</i>	<i>Prob.</i>	<i>Strategies</i>				
		0	1	2	3	4
S_1	0.1	0	-10	-20	-30	-40
S_2	0.1	0	50	40	30	20
S_3	0.2	0	50	100	90	80
S_4	0.2	0	50	100	150	140
S_5	0.4	0	50	100	150	200

- 5 Write short notes : (any two) 14
 (1) Biased and unbiased errors.
 (2) Stratified random sampling method
 (3) Theory of estimation
 (4) Properties of Good Estimator.