

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE**

Mid Semester Examination – March 2019

Course: B. Tech Computer science Sem : IV

Subject Name: Probability & statistics Subject Code:BTCOC402

Max Marks:20 Date:-12-03-19 Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory
2. Use of Non-programmable calculator is allowed.
3. Figures to the right indicate full marks.

Q.1

Multiple choice questions

(Level/CO) Marks
M 6

1) Given that $P(A) = 0.8$, $P(B) = 0.7$, $P(A \cup B) = 0.9$, what is $P(A \cap B)$

- A. Can be any number between 0 and 0.7
- B. 0.56
- C. 0.06
- D. 0.6

2) X takes values 1,2,3 with $P(X=1)=0.2$ and $E(X) = 2.2$, then $P(X=2)$ is

- A. 0.5
- B. 0.1
- C. 0.3
- D. 0.4

3) If random variable X has binomial distribution with parameter n and p, then

- A. Mean < Variance
- B. Mean > Variance
- C. Mean = Variance
- D. Mean \leq Variance

4) Suppose X follows normal distribution with mean 60 and variance 10, then maximum height of its probability density curve is of.....

- A. 60
- B. 50
- C. 65
- D. 70

5) The probability of drawing one white ball randomly from a bag containing 6 red, 8 black, 10 yellow and 1 green ball is

- A. 1/25
- B. 0
- C. 1
- D. 14/25

6) The sample space is.....

- A. A set of the data space in which a sample experiment can be performed
- B. The set of an possible outcome of a random experiment
- C. A space from which a sample for study may be drawn
- D. None

3 X 2

Q.2 Solve Any Two of the following.

- (A) In a bolt factory, machine A, B, C manufacture respectively 25%, 35% and 40% of the total, of their output 5, 4, 2 percent are known to be defective bolts. A bolt is drawn at random from the product and is found to be defective. What are the probability that it was manufacture by i) machine A ii) machine B or C
- (B) Two beads are selected at random without replacement from a bowl containing 4 blue, 1 red and 2 black beads. Let X denote the number of red beads, Y denote the number of black beads drawn.
- i) Find the joint p.m.f
 - ii) Obtain the marginal p.m.f of X and Y
 - iii) Calculate $P(X < Y)$
- (C) An unbiased coin is tossed is toss six times find the probability of getting
- i) Two heads
 - ii) at least four heads

Q.3 Solve Any Two of the following.

- (A) Suppose continuous random variable X has p.d.f
- $$f(x) = \begin{cases} x^2/3; & -1 \leq X \leq 2 \\ = 0; & \text{Otherwise} \end{cases}$$
- If $A = \{x | x \geq 0\}$
 $B = \{x | -1/2 \leq x \leq 1/2\}$
 Find $P(A), P(B), P(A \cap B), P(A \cup B), P(A \cap B), P(A \cup B), P(A \cap B)$
- (B) A die is tossed twice. Getting a number greater than 4 is considered a success. Find the mean and variance of the probability distribution of the number of successes.

(C) Fit a binomial distribution to the following data;

X :	0	1	2	3	4
f :	28	62	46	10	4

*** End ***