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.**

		(Level/CO)	Marks
Q. 1	Multiple choice questions	M	**6**

1) Given that P(A) = 0.8, P(B) = 0.7, P(AUB) = 0.9, what is P(A∩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 ≤ 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

$$f(x) = x^2/3; \quad -1 \le X \le 2$$
$$= 0; \quad \text{Otherwise}$$

If A = {x|x ≥ 0}

B = {x|-1/2 ≤ x ≤ 1/2}

Find P(A),P(B), P(A') P(A∩B), P(A∪B), P(A'∩B), P(A'∪B'), P(A'∩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 *****

8