**B.Tech. (I sem) CSBS**

**Probability and Statistics:Unit-I**

**Tutorial-01**

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| Probability spaces | |
| Q.01 | A bag contains 8 white and 6 red balls. Find the probability of drawing of drawing two balls of the same color. |
|  | 43/91 |
| Q.02 | There are 4 letters and 4 addressed envelopes. If the letters are placed in the envelopes at random, find the probability that (i) none of the letters is in the correct envelope and (ii) at least 1 letter is in the correct envelope, by explicitly writing the sample space and the event spaces. |
|  | 1. 3/8 2. 5/8 |
| Q.03 | Find the probability of drawing an ace or a spade or both from a deck of cards. |
|  | 4/13 |
| Q.04 | There are 11 tickets in a box bearing numbers 1 to 11. Three tickets are drawn one after the other without replacement. Find the probability that they are drawn in an order bearing 1. Even, odd, even number, 2. Odd, odd, even number. |
|  | 4/33, 5/33 |
| Q.05 | If P(A)=0.3,P(B)=0.5, Find P(AorB) if A & B are exclusive and if A & B are independent |
|  | 0.8,0.65 |
| Conditional Probability And Independence | |
| Q.06 | A box contains 2 white and 4 black bals. Another box B contains 5 white and 7 black balls. A ball is transferred from the box A to the box B. Then a ball is drawn from the box B. Find the probability that it is white. |
|  | 16/39 |
| Q.07 | The students in a class are selected at random, one after the other, for an examination. Find the probability that the boys and girls in the class alternate if   1. The class consists of 4 boys and 3 girls. 2. The class consists of 3 boys and 3 girls. |
|  | 1/35, 1/10 |
| Q.08 | There are three bags; first containing 1 white, 2 red, 3 green balls; second 2 white, 3 red, 1 green balls and third 3 white, 1 red, 2 green balls. Two balls are drawn from a bag chosen at random. These are found to be one white and one red. Find the probability that the balls so drawn came from the second bag. |
|  | 6/11 |
| Q.09 | If P(A)=1/4, P(B)=1/3 and P(A or B)=1/2, Evaluate P(A|B) and P(B/A) |
|  | ¼,1/3 |
| Q.10 | Three machines A, B and C produce identical items. Of their respective output 5%,4 % and 3% of items are faulty. On a certain day, A has produced 25% of the total output, B has produced30% and C the remainder. An item selected at random is found to be faulty. What are the chances that it was produced by the machine with the highest output? |
|  | 0.3555,C |