**Probability and Statistics**

**Sessional Assignment Spring 2020**

**Marks : 20**

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| 1 | Answer the following: (10 X 02 = 20 Marks) |
| (a) | Mean and variance of binomial distribution is 4 and . Find n and p. |
| (b) | If X is normally distributed with mean 12 and standard deviation 4 then find the probability if |
| (c) | Define critical region. |
| (d) | Write the properties of t-distribution. |
| (e) | Write a short note on analysis of variance. |
| (f) | Define R.B.D. |
| (g) | Define statistical quality control. |
| (h) | Define the terms “chance causes and assignable causes”. |
| (i) | Define traffic intensity. |
| (j) | Write the characteristics of queuing theory. |

2.

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| (a) | Derive mean and variance of binomial distribution. |
| (b) | A car hire firm has two cars, which it hires out day by day. The number of demands for a car on each day is distributed as a Poisson distribution with mean 1.5. Calculate the proportion of days on which:  (i) Neither car is used. (ii) The proportion of days on which some demand is refused? |

3. A set of 5 assembles of 15 sub-groups.

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| --- | --- | --- | --- |
| Group No. | No. of defects | Group No. | No. of defects |
| 1 | 75 | 9 | 47 |
| 2 | 64 | 10 | 77 |
| 3 | 75 | 11 | 59 |
| 4 | 45 | 12 | 57 |
| 5 | 93 | 13 | 84 |
| 6 | 55 | 14 | 40 |
| 7 | 49 | 15 | 95 |
| 8 | 65 | - | - |

Draw a suitable chart and give your comment