MCADD-203

M.C.A. (Dual Degree/Integrated Course), II Semester

Examination, December 2017

Statistics

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
  ii) All questions carry equal marks.

1. a) Define median. Find the median wage of the following distribution:

Wages (in Rs.)	20-30	30-40	40-50	50-60	60-70
No. of labours:	3	5	20	10	5

   b) Show that the variance of a distribution is independent of change of origin but not of scale.

2. a) For the distribution the mean is 10 variance is 16, $\gamma_1 = +1$, and $\beta_2 = 4$. Find the first four moments about origin.

   b) Explain with suitable example the term dispersion establish the relation between standard deviation and root mean square deviation.

3. a) Obtain rank correlation coefficient for the following:

x :	68	64	75	50	64	80	75	40	55	64
y :	62	58	68	45	81	60	68	48	50	70

   b) Define lines of regression. Explain why those are two such lines.

4. a) The odds against A solving certain problems are 4 to 3 and odds in labour of B solving the same problem are 7 to 6. What is the probability that the problem will be solved if they both try independently.

b) If $P(x=2)=9\ P(x=4)+90\ P(x=6)$ in the Poisson distribution then find $E(x)$.

5. a) Let X be a binomially distributed random variable with mean 10 and variance 5, then show that

$$P(x>6) = \left(\frac{1}{2}\right)^{20} \sum_{r=7}^{20} {}^{20}C_r$$

b) With usual notation prove that
$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

6. a) If $P(x=2)=9\ P(x=4)+90\ P(x=6)$ then tunel mean of the Poisson distribution.

b) Define Normal probability distribution. If mean of normal population is if are its variance is σ^2 what are its median and β_1 and β_2.

7. a) Find the mean and standard deviation of the combined group (i.e. whole set) from the following:
$n_1 = 50$, $M_1 = 54.1$, $\sigma_1 = 8$, $n_2 = 100$, $M_2 = 50.3$, $\sigma_2 = 7$

b) Compute the Bowley's coefficient for following frequency distribution.

Marks:	0-10	10-20	20-30	30-40	40-50
No. of students	2	7	10	5	3

8. a) Compute the mode for the following frequency distribution:

Marks less than:	2	4	6	8	10	12	14
No. of students:	6	20	36	56	58	62	68

b) Define statistics. Discuss its scope and limitations.

******

MCADD-203