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MCADD-203

M.C.A (Integrated), II Semester

Examination, June 2020

Statistics

Time : Three Hours

Maximum Marks : 70

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

1. a) Define statistics. Discuss its scope and limitations.

   b) What are the different measures of central tendency? Discuss the essentials of an ideal average.

2. a) Calculate mean deviation from median and mode from the following distribution.

No. of persons :	1	2	3	4	5	6	7	8	9
No. of families :	15	20	16	12	10	9	8	6	4

   b) An incomplete frequency distribution is given below:

Class :	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequencies :	12	30	?	65	?	25	18

   Find the missing frequencies when the total of frequencies is 229 and the median is 46.

3. a) Calculate S.D. and coefficient of variation for the following table.

Class :	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency :	5	10	20	40	30	20	10	5

b) Find the mean and standard deviation for the following frequency distribution.

Age (in years)	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency :	4	8	8	16	12	6	4

4. a) Explain the terms skewness, moments and kurtosis and throw light on their need of study in statistics.

b) Calculate first four moments about the mean from the following datas:

Size :	2	4	8	10
Frequency :	10	15	8	7

5. a) Compute the quartiles from the following data and then compute the Bowley's coefficient of skewness.

Wages (in Rs.)	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of workers:	20	45	85	160	70	55	35	30

b) What is meant by association of attributes? How does it differ from correlation?

6. a) From a pack of 52 cards two cards are drawn at random. Find the probability of the following events:

i) Both cards are of spade.

ii) One card is of spade and one card is of diamond.

b) If A and B are two events, where $p(A)=\frac{1}{2}, p(B)=\frac{1}{3}$ and $p(A \cap B)=\frac{1}{4}$, then evaluate the following:

i) $p\left(\frac{A}{B}\right)$ ii) $p\left(\frac{B}{A}\right)$ iii) $p(A \cup B)$

7. a) One bag contains 5 white balls and 7 black balls, another bag contains 3 white balls and 5 black balls. If a bag chosen at random and a ball is drawn from it then
   i) What is the chance that it is white?
   ii) What is the chance that it is black?

   b) Out of 320 families with 5 children each. What percentage would be expected to have
   i) 2 boys and 3 girls
   ii) Atleast, one boy? Assume equal probability for boys and girls.

8. a) Find the binomial distribution whose mean is 4 and variance is 3. Also find its mode.

   b) Fit Poisson's distribution to the following and calculate theoretical frequencies $\left(e^{-0.5} = 0.61\right)$

Deaths :	0	1	2	3	4
Frequency :	122	60	15	2	1

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