[Use a separate answer book for each group]

Group – A

[*Answer **any three** questions*]   [3×5]

1. What is Histogram? How would you draw a Histogram? State some of its uses.

2. What do you mean by the Central tendency of a frequency distribution? What are the different measures of Central tendency? Discuss why A.M. is considered to be the best measure of Central tendency.

3. For a set of 'n' positive values of a variate 'X', show that, $AM \geq GM \geq HM$.

4. What is dispersion? Show that Mean deviation is minimum when the deviations are taken from median.

Group – B

[*Answer **any two** questions*]   [2×5]

5. a) A coin is tossed 3 times in succession. Find the probability of (i) 2 heads (ii) 2 consecutive heads

   b) A coin is tossed, and a die is thrown. Show that the events 'head' and 'six' are independent.   [2×2½]

   [*The independence of the toss and the throw of a die is intuitionally obvious. However, the idea here is to re-inforce this belief by using the suitable probability law.*]

6. There are three identical urns containing white and black balls. The first urn contains 2 white and 3 black balls, the second urn 3 white and 5 black balls, the third urn 5 white and 2 black balls. An urn is chosen at random, and a ball is drawn from it. If the ball drawn is white, what is the probability that the second urn is chosen?   [5]

7. The outcome of an experiment is equally likely to be one of the four points in three-dimensional space with rectangular co-ordinates (1,0,0), (0,1,0), (0,0,1) and (1,1,1). If A, B, C denote the events: x-co-ordinate 1, y-co-ordinate 1, z-co-ordinate 1 respectively, then check if A, B, C are mutually independent.   [5]

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