Note : 1) All Questions are compulsory.
       2) Figures to right indicate full marks.

Q.1.   Attempt All (Each of 5 Marks)   15
  a.   Multiple choice questions.
         i. For two independent events A and B, P(A) = 0.3, and P(B) = 0.4 then P(A∩B)
            a. 0.12   b. 0.3   c. 0.4   d. 0.2

         ii. If the lower & upper limit of class are 10 & 40 then class mark of the class in
            _____
            a. 25.0   b. 12.5   c. 15.0   d. 30.0

         iii. If covariance of x and y is zero then correlation coefficient will be _____
            a. 0   b. 1   c. -1   d. None

         iv. If r = 0, then two regression lines are _____ to each other.
            a. Parallel   b. Perpendicular   c. Coincide   d. Different

         v. The measure of central Tendency which can be used for further mathematical
            treatment is _____.
            a. Mean   b. median   c. mode   d. All

  b)   Fill in the blanks.
         i. Second ordered central moment is _____.
         ii. If coin is tossed then the probability of head & tail is _____.
         iii. P (A∩A') = _____
         iv. Histogram can be drawn only for _____ frequency distribution.
         v. Deciles divides entire data in _____ equal parts.

  c)   Short answers.
         1. Mutually Exclusive Events
         2. Coefficient of Range
         3. Nonsense correlation
         4. Qualitative Characteristic
         5. Percentile

Q.2.   Answer the following (Any three)   15
   1. Obtain coefficient of variation for the following data :
      3, 5, 7, 9, 12, 6, 3, 8, 6, 9, 5, 12, 11, 8, 10, 3, 7
   2. Obtain mean and mode for the following data.

C.I.	10-20	20-30	30-40	40-50
Frequency	2	4	7	5

   3. Define variance, standard deviation and coefficient of variation. Explain how to
      calculate them for raw data.
   4. Write a short note on Quartiles.
   5. Find the coefficient of Quartile deviation for the following data.
      x : 2, 5, 4, 3, 6, 8, 9, 2, 7, 8, 5, 9, 5, 10, 13, 15, 3, 7, 8, 6, 12, 17, 17, 18
   6. Explain the procedure of drawing less than ogive curve for continuous frequency
      distribution.

Q.3.   Answer the following (Any three)   15
   1. Define Kurtosis. Distinguish clearly by drawing figures between leptokurtic and
      platykurtic.

3. State the properties of Regression coefficient.
4. Define raw moments & central moments. Write down the relation between them.
5. For the following data obtain regression line of the type y on x.

x	12	14	16	14	15	18
y	2	4	7	5	4	3

6. If $\mu = 1$, $\mu_2 = 3$, $\mu_3 = 0$ and $\mu_4 = 27$ then compute B_1 & B_2

Q.4. Answer the following (Any three)   15

1. A six faced dice is tossed. Write sample space & find the probability of
   i. Even Number   ii. Prime Number
2. The letter of word 'EQUATION' are arranged randomly. What is the probability that
   i. Start & end with vowels
   ii. Have all vowels together
3. Explain the following concept.
   i. Union of two events.
   ii. Intersection of two events
4. Explain mutually Exclusive and Exhaustive Events.
5. A test paper contains 10 problems is given to three students A, B & C. It is considered that Student A can solve 60% problem, Student B can solve 40% problem & Student C can solve 30% problem. Find the probability that the problem chosen from the test paper will be solved by all three students.
6. Define conditional probability & state Baye's theorem.

Q.5. Answer the following (Any Three)   15

1. A ticket is drawn from a box contains 30 ticket & a number on it is observed. Obtain the probability that ticket drawn has number
   i. Less than 6
   ii. Greater than 20
   iii. Multiple of 5
2. Write the expression for combined mean and standard deviation.
3. Explain the concept of discrete & continuous variable.
4. Explain the procedure of plotting Bar chart and Piet chart
5. Compute Rank correlation between performance in Maths and Computer Science. The scores are given below.

Maths	56	65	72	48	56	70
Computer Science	76	60	50	75	66	87

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