DMM-3108
Second Year B. Sc. (Sem. IV) Examination
March/April - 2016
Statistical Methods - II (I.D.)

Time : 2 Hours] [Total Marks : 50

Q-1

Q-2(a)

(b) 3

\(P(x=\frac{3}{2}) P(x=1)\)  the \(P(x=2)\)  the

\(P(x=2)\)  the

\(P(x=2)\)  the

\(P(x=2)\)  the
Q-3(a) If \( x_1 = 12, x_2 = 18, x_3 = 15, x_4 = 13, x_5 = 23, x_6 = 24, x_7 = 17, x_8 = 16 \) and \( y_1 = 21, y_2 = 24, y_3 = 34, y_4 = 20, y_5 = 30, y_6 = 28, y_7 = 15, y_8 = 18 \), then find the correlation coefficient.

(b) If \( 5x - y = 22 \) and \( 6x - 45y = 20 \), then find \( x, y \) and \( r_y \).

Q-4(a) If \( x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8 \) are the marks of a test, then find the mean, median, mode, and standard deviation.

(b) If \( A = 3, B = 6, C = 5, D = 3 \), then find the mean, median, mode, and standard deviation.


ENGLISH VERSION

Instructions:
1. Answer the following questions.
2. Logarithmic tables and statistical tables will be supplied on request.
3. Figures given to the right indicate the marks of the question.
4. Non-programmable scientific calculator is allowed.

Q-1 Answer the following questions.
1. If \( h_y = 1.2, \sigma_x = 3, \sigma_y = 4 \) then find \( \sigma_y = 5 \) and \( r \).
2. If \( x \) is binomial variate with mean 2 and variance 1.2 then find \( P(x > 0) \).
3. For two variables \( x \) and \( y \), covariance = 112, \( \sigma_x = 13 \), \( \sigma_y = 12.5 \) then find \( r_{xy} \).
4. State characteristics of Index numbers.
5. In usual notations, \( \sum p_q u = 400, \sum p_2 q_1 = 475, \sum p_2 q_2 = 320 \) and \( \sum p_0 q_1 = 380 \) then find Pasche’s Index number.

Q-2(a) Answer any two of the following questions.
(i) Give two illustrations of binomial distribution and obtain its mean and variance.
(ii) Obtain moment generating function of Poisson distribution and hence find mean and variance from it.
(iii) Define normal distribution and state its characteristics.
(b) Answer any one of the following.

(i) If \( x \) is binomial variate with mean 2.4 and variance 1.44 then find \( P(x \geq 5) \)

(ii) If \( x \) is Poisson variate with \( p(x = 2) = \frac{3}{2} p(x = 1) \) then find \( p(x > 0) \text{ and } P(x = 2) \)

Q-3(a) Define correlation and describe Spearman's rank method for rank correlation coefficient.

(b) Find Karl Pearson's correlation coefficient from following data.

\[
\begin{array}{cccccccc}
X & 14 & 18 & 15 & 13 & 23 & 24 & 17 & 16 \\
Y & 21 & 24 & 34 & 20 & 30 & 28 & 15 & 18 \\
\end{array}
\]

Q-3(a) Explain : Regression, coefficient and state its characteristics

(b) For two regression line are \( 5x - y = 22 \) and \( 6x - 45y = 20 \) then find \( (i) \overline{x}, \overline{y} \) and \( (ii) r_w \)

Q-4(a) Explain steps for construction of index number.

From the following data find Marshall Edgeworth index number and also show that it satisfies time reversal test.

(c) Explain: Factor reversal test

OR

Q-4(a) State meaning of times series and states its uses.

(b) From the following data find trend of three year moving average method and also obtain short time fluctuations.

\[
\begin{array}{cccccccc}
\text{Price (rs)} & 100 & 130 & 154 & 184 & 201 & 230 & 254 & 280 \\
\end{array}
\]