AC-3305
First Year B. Sc. (Sem. II) Examination
March / April - 2015
Statistics : Paper - IV
(Old Course)

Time : 2 Hours] [Total Marks : 50

Q-1. नीचे प्रस्तुत प्रश्नोत्तरी जवाब आयोजित करें।
   (1) \( S = \{e_1, e_2, e_3, e_4\} \) से \( P \) वी \( S \) पर बना सेमि-मैप किया हो, अनेक \( e_1 \),\n   \( P(e_1) = P(e_2) \) अन्य \( P(e_1) = 2P(e_2) = \frac{1}{4} \) होता है \( P \) \( e_1 \) अन्य \( P(e_2) \) में प्रयोग.
   (2) \( P(A) = 0.40, P(A \cup B) = 0.70 \) अन्य \( P(B) = P \) होता है \( P \) नी लिए \( \frac{\text{कक्षा} \text{में} \text{के} \text{A} \text{के} \text{निर्देश} \text{पठाना} \text{चाहिए} \)
   (3) नीचे सूत्रित माध्यत्मिक निर्माण करें, अनेक \( A \) एक \( B \) में जुगाड़न चाहिए।
   \[ \sum p_i q_i = 115, \sum p_i q_i = 180, \sum p_i q_i = 165, \sum p_i q_i = 135 \]
   (4) \( A \) \( \text{स्पष्ट} \text{ना} \text{कहते} \text{है?} \)

Q-2. (a) कैसे वशिकरण करें? जवाब आयोजित करें।
   (1) \( A_1, A_2 \) अने \( A_3 \) निर्देश राहता है \( (A_1 \cup A_2) \) अने \( A_3 \) निर्देश राहता है।
   (2) \( x_1, x_2 \) अने \( x_3 \) राहता है \( x_1 \) अने \( x_2 \) राहता है \( (x_1 + x_3) \) अने \( (x_1 + x_3) \) राहता है।
   (i) \( x_1 + x_2 = 9 \) (ii) \( x_1 + x_2 > 5 \) (iii) \( |x_1 - x_2| = 2 \)

AC-3305] [Contd...
ENGLISH VERSION

Instructions:
(1) As per the instruction no. 1 of page no. 1.
(2) All questions are compulsory.
(3) Figures to the right indicate full marks of the question.
(4) Statistical and logarithmic tables will be supplied on request.
(5) Use of non-programmable scientific calculator is allowed.

Q-1. Answer the following questions.

(a) If $S=\{e_1,e_2,e_3,e_4\}$ and let $p$ be the probability function on $S$ then find $P(e_1)$ and $P(e_2)$ if $P(e_1) = P(e_2) = \frac{1}{4}$ and $P(e_3) = 2P(e_2)$.

(b) $P(A) = 0.40$, $P(AUB) = 0.70$ and $P(B) = P$. For what choice of $p$, $A$ and $B$ are independent?

(c) Find Fisher and Marshal Edgeworth index number from the following information.

$$\sum p_i q_i = 115, \quad \sum p_i q_i = 180, \quad \sum p_i q_i = 165, \quad \sum p_i q_i = 135$$

(d) What is National income?

Q-2. (a) Answer any one of the following questions.

(i) In usual notation state and prove addition law of probability.

(ii) $A_1$, $A_2$ and $A_3$ are independent events then show that $(A_1UA_2)$ and $A_3$ are independent.

(b) Answer any two of the following questions.

(i) Two unbiased dice are tossed once, the outcomes are obtained as $x_1$ and $x_2$. Find the probability of the following events.

1. $x_1 + x_2 = 9$
2. $x_1 + x_2 > 5$
3. $|X_1 - X_2| = 2$

...
(ii) A bag contains 3 red, 4 green balls. Second bag contains 4 red, 5 green balls and third bag contains 3 red and 6 green balls. A blind person can randomly selected one bag then he selects one ball from it. What is the probability that selected ball is green.

(iii) Two cards are drawn from a pack of 52 cards then find the probability that (1) both are of black colour (2) both are of heart (3) both are of pictures.

Q-3. (a) Attempt any three of the following questions.

(i) What is index number? State its uses.

(ii) State the uses and limitations of cost of living index number.

(iii) What is time reversal test and factor reversal test? Show that Marshal edgeworth index number satisfied time reversal test but not satisfied factor reversal test.

(iv) Explain the construction of wholesale index number.

Q-4. Answer any two of the following questions.

(i) Write the uses of national income.

(ii) State the limitations arise in estimation of national income.

(iii) Explain the income method for estimation of national income.