

THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. /B.Ed. Degree Programme, Continuing Education Programme
APPLIED MATHEMATICS/OPEN ELECTIVE -LEVEL 03
ADU3201/ADU3218- Basic Statistics
NO BOOK TEST 2024/2025



Date: 27.09.2024

Time: 9.00 a.m. - 10.00 a.m.

ANSWER ALL QUESTIONS

1. (a) How many different ways are there to arrange letters of the word 'WORLD'?
- (b) (i) How many arrangements can be made, with the letters of the word 'CALCULATOR'?
- (ii) In how many of these arrangements, vowels occur together?
- (c) In how many different arrangements can 6 men and 6 women sit around a round table if
- (i) there is no restriction.
- (ii) any two women never sit together.
- (d) Three letters are selected at random from the 8 letters of the word 'COMPUTER', without regard to the order.
- (i) Find the number of possible selections of 3 letters.
- (ii) Find the probability that the letter P is included in the selection.
- Three letters are now selected at random, one at a time, from the 8 letters of the word COMPUTER, and are placed in order in a line.
- (iii) Find the probability that the 3 letters from the word TOP.

Continued

2. A rugby club has three categories of membership: adult, social, and junior. The number of members in each category, classified by gender, is shown in the table below.

	Adult	Social	Junior
Female	25	35	40
Male	95	25	80

One member is chosen, at random, to cut the ribbon at the opening of new clubhouse.

- (a) Find the probability that:
 - (i) A female members is chosen;
 - (ii) A junior members is chosen;
 - (iii) A junior member is chosen, given that a female member is chosen.

- (b) V denotes the event that a female member is chosen.
 W denotes the event that an adult member is chosen.
 X denotes the event that a junior member is chosen.

For the event V, W, X :

- (i) Write down two events which are mutually exclusive.
- (ii) Draw a Venn diagram to represent the above mutually exclusive events.
- (iii) Find $P(W \cup X)$ and $P(W' \cap X')$.
