Uganda Martyrs University

Faculty of Education

SEMESTER ONE EXAMINATIONS 2022/2023

DIPLOMA IN EDUCATION (PRIMARY) YEAR II

MATHEMATICS EDUCATION

PAPER ONE: STATISTICS AND PROBABILITY

Date: 13.1.2023 **3hrs** **Time: 2:00pm-5:00pm**

Instructions:

- **The paper is made of two sections A and B.**
- **Attempt any two questions from section A and two from section B.**
- **Each question should start on a fresh page.**
- **Do not write on this question paper**

SECTION A

Attempt any two questions from this section

Question 1

a) Define the following terms as used in statistics:

i. An array
ii. Raw data
iii. Frequency
iv. Frequency distribution
v. Class limits
(10 marks)

b) Given the data set 15,2,4,11,8,525,16,18, 15. Use the data to find the:

i. range
ii. lower quartile
iii. upper quartile
iv. Inter quartile range
v. quartile deviation
(15 marks)

Question 2

The table below shows the marks scored in a Mathematics test by UMU students.

Marks	frequency
1-10	6
11-20	14
21-30	18
31-40	42
41-50	20

a) Draw a histogram for the above table.
(15 marks)

b) Use the histogram to estimate the mode.
(05 marks)

c) Compute the semi-interquartile range.
(05 marks)

Question 3

The data below shows the number of eggs collected by 25 poultry farmers in Kayabwe town council.

92	126	130	112	88
105	129	100	135	152
128	124	97	118	125
119	115	129	116	148
138	141	108	115	134

a) Using a class width of 9, construct frequency distribution with 80 as the lower-class limit of the first class. (10 marks)

b) From the table compute the.

i. Mean
ii. Median
iii. Mode
iv. Variance
v. Standard deviation
(15 marks)

SECTION B

Attempt any two questions from this section

Question 4

a) What are mutually exclusive events.

b) Give any two examples of such events.
(06 marks)

c) A bag contains 7 pink beads, 3 yellow beads and 5 green beads. One bead is picked at random from the bag without replacing. A second ball is picked. Construct a probability tree to illustrate the picking.
(04 marks)

farmers in Kayabwe town

probability of picking.

At least a yellow bead.
Two beads of the same color.
One pink and one green.
(15 marks)

Question 5

a) Two dice are rolled together. Draw a sample space showing all the possible outcomes and hence, use the sample space to find the probability of getting.

i. A sum which is even
ii. A sum which is prime
iii. A sum that is composite
iv. The same outcome on both dice.
(15 marks)

b) The probability that Sarah will pass an examination is 3/5 and that John will pass the same examination is 2/3. What is the probability that both Sarah and John will;

i. Pass the examination.
ii. Fail the examination.
(10 marks)

Question 6

a) Given that $P(A) = 3/4$, $P(B) = 5/8$ and $P(A \cap B) = 1/2$. Represent the given information on a Venn diagram. (02 marks)

b) Use the Venn diagram to find.

i. $P(\mathbf{A'})$
ii. $P(\mathbf{B'})$
iii. $P(A \cup B)$
iv. $P(A \cup \mathbf{B'})$
v. $P(\mathbf{A'} \cap B)$
(15 marks)

c) What are independent events?
d) Give any one example of such events.
e) If a coin is tossed and a die is rolled at the same time. What is the probability of getting a head and a number more than 3?

(08 marks)

END