

JUNE 2021
EHR 101
STATISTICS AND PROBABILITY II
1 HOUR

Candidate's Index Number:
Signature:

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B.ED)
THIRD YEAR, SECOND SEMESTER MID SEMESTER QUIZ, JUNE 2021

JUNE 21, 2021

STATISTICS AND PROBABILITY II

3:00 PM - 4:00 PM

Answer ALL the questions.
40 Marks

For items 1 to 10, each stem is followed by four options lettered A to D. Read each item carefully and circle the letter of the correct or best option.

1. Calculate the probability that a single toss of a fair die results in a number less than four given that the toss resulted in an odd number.

- A. $\frac{1}{6}$
- B. $\frac{1}{3}$
- C. $\frac{2}{3}$
- D. $\frac{5}{6}$



2. How many ways can we arrange 10 books on a shelf that can take only 3 books?

- A. 120
- B. 240
- C. 360
- D. 720

3. How many distinct ways can five people be seated on a bench?

- A. 24
- B. 36
- C. 96
- D. 120

4. If a family has three children, find the probability that two of the three children are girls.
- A. $\frac{2}{3}$
 - B. $\frac{3}{8}$
 - C. $\frac{1}{8}$
 - D. $\frac{1}{3}$
5. How many distinguishable arrangements can be made from the letters of the word **Statistics**?
- A. 504
 - B. 804
 - C. 5040
 - D. 50400
6. If events A and B are mutually exclusive and $p(A) = \frac{1}{3}$ and $p(A \cup B) = \frac{2}{5}$, find $p(B)$.
- A. $\frac{11}{15}$
 - B. $\frac{8}{15}$
 - C. $\frac{3}{15}$
 - D. $\frac{1}{15}$
7. The mean age of 6 pupils is 12 years. When the age of a seventh pupil is added, the mean age decreases to 11 years. What is the age of the seventh pupil?
- A. 5 years
 - B. 6 years
 - C. 7 years
 - D. 8 years
8. A box contains 5 white, 2 black and 3 red similar balls. A ball is selected at random from the box, replaced and a second ball is selected. Find the probability that the two selected balls are red.
- A. $\frac{1}{4}$
 - B. $\frac{3}{10}$
 - C. $\frac{9}{100}$
 - D. $\frac{3}{100}$

Use the set $\{0, 1, 2, 3, 4\}$ to answer question 9 and 10.

9. How many five-digit numbers can be formed if each number is used once?
- A. 48
 - B. 60
 - C. 86
 - D. 96

10. How many of the five-digit numbers are more than 20,000?

- A. 48
- B. 60
- C. 86
- D. 96

For items 11 to 13, show ALL details of working including the answer on the question paper.

11. Three fair coins are tossed together once and the results observed and recorded. Find the probability of obtaining at least two tails given that the first coin falls tail. [8 Marks]

12. A coin is tossed four times. Use a tree-diagram to find the sample space. [2 Marks]

13. The table below shows the marks obtained by 33 students in a class. (10 marks)

Marks (x)	1	2	3	4	5	6	7	8
Frequency (f)	2	8	k^2	4	6	$3k$	2	1

(a) Find the value of k

(b) Calculate the mean score of the class, correct to 2 decimal places.

