INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

HIGHER EDUCATION CERTIFICATE

END OF SEMESTER EXAMINATIONS - AUGUST 2025

PROGRAMME: HEC
YEAR/SEM: YEAR 1/SEMESTER 2
COURSE CODE: FDN 1201
NAME: FONDATION MATHEMATICS TWO

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Attempt ALL Questions (Each question carries 4 marks)

Question 1:

A bag contains 3 red balls and 4 blue balls. You draw a ball without looking, and then you draw a second ball without replacing the first. What is the probability of drawing a red ball then a blue ball?

Question 2:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 742px;">

Question 3:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 679px;">

Question 4:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 417px;">

Question 5:

The wages of certain group of workers in 2021 was 140,000 and in 2024 it was 210,000. Using 2021 as a base year, calculate the workers wage index in 2024.

Question 6:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 542px;">

Question 7:

Using Simple Average of Relatives Method, find price index for 2004, taking 2000 as base year

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 541px;">

Question 8:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 706px;">

Question 9:

The table below indicates marks obtained by students in a statistics test. Compute the mean mark of the class

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 269px;">

Question 10:

If $f(x) = ax + b$, where a and b are integers, $f(-1) = -5$ and $f(3) = 3$, then a and b are equal to

Question 11:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 742px;">

Question 12:

In the figure below, calculate length AC

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 323px;">

Question 13:

A builder is constructing a roof. The wood he is using for the sloped section of the roof is 4m long and the peak of the roof needs to be 2m high. What angle should the piece of wood make with the base of the roof?

Question 14:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 425px;">

Question 15:

A student goes to the nearest snack to have a breakfast. He can take tea, coffee, or milk with bread, cake and sandwich. How many possibilities does he have?

Question 16:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 742px;">

Question 17:

From the following data, construct the price index for each year with price of 1995 as base.

YEAR	1995	1996	1997	1998	1999	2000
PRICE	40	50	45	55	65	70

Question 18:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 296px;">

Question 19:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 608px;">

Question 20:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 400px;">

SECTION B

Attempt any three question (Each question carries 20 marks)

Question 1:

The Following is the distribution of the size of certain farms selected at random from a district

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 434px;">

Compute;

i) mean

ii) mode

iii) median

upper quartile

Question 2:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 676px;">

Question 3:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 727px;">

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 742px;">

Question 4:

The below show the performance of semester two students in a mathematics contest

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 441px;">

a) Use the table above to find;

i) Variance

ii) Standard deviation

b) Find mean deviation about

i) mean,

ii) median

iii) mode

Question 5:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 742px;">

Question 6:

a) Given two independent events such that P(A)

Find the probability of P(AnB).

b) A bag consists of beads of which 5 are red, 7 are blue and 8 are yellow. Two beads are to be taken at random without replacement. Calculate the probability that the beads will be;

a) All yellow

b) All blue

c) All red

d) All the three of different colors.

Question 7:

[Figure from the original paper could not be retrieved]

data-filename="image.png" style="width: 640px;">

Question 8:

a) Convert the degrees into radians

i) 90

ii) 60

iii) – 180

b) Convert the following radians into degrees

i) π/6

ii) 7π/5

c) A 25 m long ladder is placed against a vertical wall of a building. The foot of the ladder is 7m from base of the building. If the top of the ladder slips 4m, then the foot of the Ladder will slide by how much distance.

d) Given that 3θ is an acute angle and sin 3θ= Cos 2θ, find the value of θ.

e) A piece of wire is bent into the shape of an isosceles triangle. The base angles are each 480 and the perpendicular height to the base is 6 cm. Calculate, correct to one decimal place, the length of the wire.

Question 9:

[Figure from the original paper could not be retrieved]

data-filename="image.png">

Question 10:

[Figure from the original paper could not be retrieved]
data-filename="image.png">