CHUKA



UNIVERSITY

UNIVERSITY EXAMINATION RESIT/SUPPLEMENTARY / SPECIAL EXAMINATIONS EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0170: MATHEMATICS FOR ACCOUTING I

STREAMS: TIME: 2 HOURS

DAY/DATE: TUESDAY 02/11/2021

2.30 P.M - 4.30 P.M.

INSTRUCTIONS:

- Answer question one and any other two questions
- Do not write anything on the question paper

QUESTION ONE

a) Define the following types of number systems; give an example in each case

i)	Real numbers	(2marks)
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b) State the properties of real numbers in the following equations (6marks)

i)
$$ax(b+c)=(axb)+(axc)$$

ii)
$$a+(b+c)=(a+b)+c$$

iii)
$$a+0=\lambda a$$

c) Use the quadratic formula to solve the quadratic equation (4marks)

$$3x^2 = 3 - 4x$$

d) If $f(x) = x^2 + 3$ and g(x) = 5x + 1, find

$$f(x) + g(x) (2marks)$$

ii)
$$(f \circ g)(x)$$
 (3marks)

iii)
$$(gof)(x)$$
 (3marks)

e) Differentiate the function $f(x) = 2x^5 + 3x^{-2} + 3x$ (3marks)

f) In how many ways can the letters of the word MATHEMATICS be arranged?

(3marks)

QUESTION TWO

- a) Show that $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ (6marks)
- b) If U={ a,b,c,d,e,f,g,h}, A=(a,b,d,f), B=(b,c,d,g) and C=(a,d,g,h) Find i) $A \cap (B \cup C)$ ii) $(A \cap B)^c$ iii $\dot{c}(A \cup B)^c$
- c) Use the complete square method to solve $\chi^2 7 \chi + 10 = 0$ (5marks)

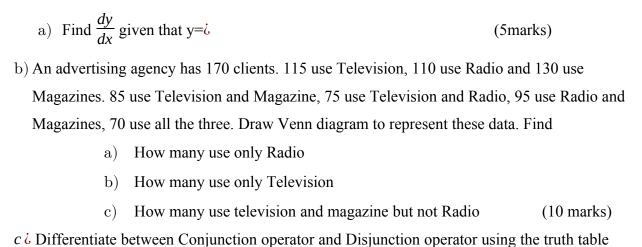
QUESTION THREE

- a) In how many ways a committee consisting of 5 men and 3 women can be chosen from 9 men and 12 women. (4marks)
- b) Solve $-2 < \frac{9-3x}{2} < 4$ (3marks)
- c) Show that $(A \cup B)^c = A^c \cap B^c$ (5marks)
- d) Solve the inequality $x^2+5<5x+1$ (4marks)
- g) Draw the truth table for conditional operator used in mathematical logic (4marks)

QUESTION FOUR

- a) From a group of 7 men and 6 women, 5 persons are to be selected to form a committee so that at least 3 men are there in the committee. In how many ways can this be done
 i. (5 marks)
- b) Simplify $\frac{\cos^2 \theta}{1 + \sin \theta} + \frac{\cos^2 \theta}{1 \sin \theta}$ (5 marks)
- c) Find the quotient and the reminder when $x^{5} + 1$ is divided by x 1 (5 marks)
- d) From a bag containing 5 white balls, 2 blue balls and 9 red balls. One ball is drawn at random. What is the probability that either blue or red ball is drawn. (5 marks)

QUESTION FIVE



marks)

(5