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)

ii) Integers (2marks)

iii) Rational numbers (2marks)

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) $a+0=¿a$

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

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

ii) $(fo\,g)(x)$ (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) (9marks)

Find i) $A\cap(B \cup C)$ ii) $(A\cap B)^c$ iii¿$(A \cup B)^c$

c) Use the complete square method to solve $x^2-7x+10=0$ (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

a) Find $\frac{dy}{dx}$ given that y=¿ (5marks)

b) An advertising agency has 170 clients. 115 use Television, 110 use Radio and 130 use Magazines. 85 use Television and Magazine, 75 use Television and Radio, 95 use Radio and Magazines, 70 use all the three. Draw Venn diagram to represent these data. Find

a) How many use only Radio

b) How many use only Television

c) How many use television and magazine but not Radio (10 marks)

c ¿ Differentiate between Conjunction operator and Disjunction operator using the truth table (5 marks)

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