CONFAB SECONDARY SCHOOL

SECOND TERM EXAMINATION 2019/2020 SESSION

SUBJECT MATHEMATICS
CLASS: S.S.S. 1
DURATION: 2 HOURS (120 MINUTES)

OBJECTIVES: SECTION A:
INSTRUCTION: Answer all questions in this section.

1) find the roots of the equation $x^2 + 12x – 28 = 0$. The greater of the two roots is
   a. A. -14 B. -2
   b. C. 2 D. 7

2) what is the value of $x^2 + 2x – 2$ when x = 1.8?
   a. A. -3.2 B. -2.4 C. 1.2 D. 4.8

   b. Use the set μ = { 3, 6, 9, 12, . . . 30} to answer questions 3 and 4

3) what is n**(μ) ?**
   a. A. 5 B. 8 C. 10 D. 27

4) List the members of the subset {x: x < 19} ∩ {x: x is a factor of 30}, given that x Ɛ **μ**
   a. A. {1, 2, 3, . . ., 28} B. {1, 2, 3, 5, 6, 10, 10, 15, 30}
   b. C. {3, 6, 9, 12, 15, 30} D. {3, 6, 15}
5) Solve the equation (x+2)(x-7).
   a. 1 or 8 b. -2 or 7 c. -4 0r 5 d. -3 or 6
6) Find the root of the quadratic equation: $x^2 + 2x – 15 = 0$.
   a. -5,5 b. 3,5 c. -3,5 d. -3, -5
7) If the roots of a quadratic equation are 20 and -7, then find the equation?
   a. $X^2 + 13x – 140 = 0$ b. $x^2 – 13x + 140 = 0$ c. $x^2 – 13x – 140 = 0$ d. $x^2 + 13x + `140 = 0$
8) Given the general quadratic equation in terms of **a** as $ax^2 + bx + c = 0$, what is the value of **b** in the equation $x^2 + 20x + 3 = 0$ when compared with general equation
   a. 10 b. 1 c. 20 d. 3
9) If **μ = { 1, 3, 5, 7, 9, 11, 13},** then which of the following are subsets of **μ.**
   a. {2,4} b. {0} c. {1, 9, 5, 13} d. {2, 3, 4, 5}
10) If P = {a, b, c, d, e}, Q = {a, c, e, d, t} and R = {t, d, c, b, e}, then the intersection of P, Q and R is
   a. { a, c} b. {a, c, e} c. {c, d, e} d. {c, d}
11) If **μ = {1, 2, 3, 4, 5}** and A = {2, 4} then A^c should be
   a. (2, 4, 5} b. {2, 4} c. {1, 3, 5} d. {1, 2, 3, 4, 5}

SECTION B(THEORY)

INSTRUCTION: Answer any 4 questions only but no 1 is compulsory

Question 1

(a) Find the quadratic equations whose roots are

(i) $\frac{1}{2}$ and 5 **(1 mark)**

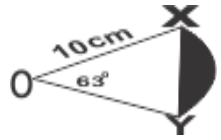
(ii) $\frac{3}{4}$ and $\frac{1}{2}$ **(1 mark)**

(b) Solve the equation $4y^2 + 5y - 21 = 0$, by factorization method. **(3 marks)**

(c) **Solve** the equation $4y^2 + 5y - 21 = 0$, by complete the square method**.(5 marks)**

Question 2

(a) Calculate the area of the shaded segment of the circle shown below



Where <XOY = 63^0 **(5 marks)**

(b) What is length of an arc which subtends an angle of 60^0 at the center of radius $\frac{1}{2}m$? **(5 marks)**

Question 3

Given the general quadratic equation $ax^2 + bx + c = 0$, where $a \neq 0$ and a, b, c ƐR. derive the general formulae for quadratic equation. **(10 marks)**

Question 4

Solve the equation $x^2 - 2x - 3 = 0$ graphically. **(10 marks)**

Question 5

In a survey of 290 newspaper readers, 181 of them read the Daily Times, 142 read the ***Guardian***, 117 read ***Punch*** and each reads at least one of the three papers. If 75 read the ***Daily Times*** and the ***Guardian***, 60 read ***Daily Times*** and ***Punch***, and 54 read the ***Guardian*** and ***Punch***:

a. Draw a Venn diagram to illustrate this information **{3 marks}**

b. How many readers read

i. All the three papers, **{2 marks}**

ii. Exactly two of the papers, **{2 marks}**

iii. Exactly one of the papers, **{2 marks}**

iv. The Guardian alone **{1 mark}**

Question 6

The statement A, B, C are given below

A: A lawyer is humorous

B: A lawyer is brilliant

C: A lawyer is neat

Write the following statements as implications

a. All brilliant lawyers are humorous.
b. No humorous lawyer is neat
c. No neat lawyer is brilliant
d. A humorous lawyer is brilliant **(10 marks)**