**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 x2 + 12x – 28 = 0. The greater of the two roots is
   1. A. -14 b. -2

c. 2 d. 7

1. what is the value of x2 + 2x – 2 when x = 1.8?
   1. -3.2 b. -2.4 c. 1.2 d. 4.8

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

1. what is n**(µ) ?**
   1. A. 5 B. 8 C. 10 D. 27
2. List the members of the subset {x: x < 19} ∩ {x: x is a factor of 30}, given that x Ԑ **µ**

A. {1, 2, 3, . . ., 28} B. {1, 2, 3, 5, 6, 10, 10, 15, 30}

C. {3, 6, 9, 12, 15, 30} D. {3, 6, 15}

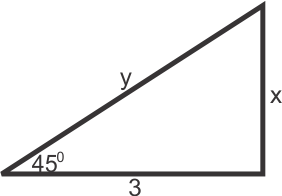
1. Solve the equation (x+2)(x-7).
   1. 1 or 8 b. -2 or 7 c. -4 0r 5 d. -3 or 6
2. Find the root of the quadratic equation: x2 + 2x – 15 = 0.
   1. -5, 5 b. 3,5 c. -3,5 d. -3, -5
3. If the roots of a quadratic equation are 20 and -7, then find the equation?
   1. X2 + 13x – 140 = 0 b. x2 – 13x + 140 = 0 c. x2 – 13x – 140 = 0 d. x2 + 13x + `140 = 0
4. Given the general quadratic equation in terms of **a** as ax2 + bx + c = 0, what is the value of **b**  in the equation x2 + 20x + 3 = 0 when compared with general equation.
   1. 10 b. 1 c. 20 d. 3
5. If **µ = { 1, 3, 5, 7, 9, 11, 13},** then which of the following are subsets of **µ.**
   1. {2,4} b. {0} c. {1, 9, 5, 13} d. {2, 3, 4, 5}
6. 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
   1. { a, c} b. {a, c, e} c. {c, d, e} d. {c, d}
7. If **µ = {1, 2, 3, 4, 5}** and A = {2, 4} then Ac should be
   1. (2, 4, 5} b. {2, 4} c. {1, 3, 5} d. {1, 2, 3, 4, 5}
8. If sin A = , then tan A =
   1. b. c. d. 1
9. The sum of the roots of the equation x2 – 3x + 2 = 0?
   1. -3 b. – 1 c. 2 d. 3
10. Which of the following is the negation of the statement

***P:***  Azeezat is brilliant

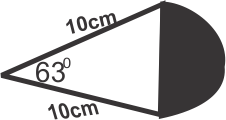
* 1. Azeezat is dull b. Azeezat is intelligent c. Azeezat is not brilliant d. Azeezat is good

1. In the implication C: **X**→**Y**, the sub statement **X** is called
   1. Consequent b. conditional statement c. antecedent d. implication
2. The ratio of the sides of an isosceles triangle is 7 : 6 : 7. What is the base angle to the nearest degree
   1. 630 b. 640 c. 650 d. 660
3. The bearing of **X** from **Y**  is 0460. What is the bearing of **Y** from **X**?
   1. **1000 b. 1260 c. 2260 d.** 460

*The diagram below dimension is in cm, use it to answer* **18** and **19**



1. What is the value of x?
   1. 1 b. 2 c. 3 d. 4
2. What is the value of y?
   1. 2 b. 2 c. 3 d. 3
3. An arc subtends an angle of 1050 at the center of a circle of radius 6cm. what is the length of the arc if **∏** is ?
   1. 9cm b. 10cm c. 11cm d.12cm
4. Calculate the perimeter of a sector of a circle of radius 7cm, the angle of the sector being 1080 if **∏** is
   1. 20cm b. 27cm c. 27.2cm d. 27.4cm
5. A sector of 800 is removed from a circle of radius 12cm. What is the area of the circle left? Use **∏** is
   1. 300cm2 b. 350cm2 c. 352cm2 d. 362cm2
6. Calculate the area of the shaded segment of the circle shown below if **∏** is



* 1. **10.15cm** b. **10.35cm** c. **10.45cm** d. **10.55cm**

1. What is the value of **α** if cos **α = sin 400?**
   1. 300 b. 400 c. 500 d. 600
2. If sin P = and P is an acute angle, what is the value of tan P?
   1. b. c. d.
3. Which of the following is the general formulae of a quadratic equation ax2 + bx + c = 0.
   1. b. c. d.
4. Evaluate 3y2 – 5y – 6 when y = - 2
   1. – 8 b. – 4 c. 16 d. 8
5. If N = {odd numbers greater than 11}, which one of the following is an element of N?
   1. 10 b. 12 c. 13 d. 14

***Use the table below to answer question 29 and 30***

Given the tables of values for y = x2 + x – 8 from x = - 4 to x = +3 as

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| X | -4 | -3 | -2 | -1 | 0 | 1 |
| Y | 4 | -2 | - 6 | -8 | **a** | **b** |

1. What is the value of **a?**
   1. **-6 b.** -7 c. – 8 d. – 9
2. What is the value of **b?** 
   1. **– 8 b. – 7 c. -6 d. -5**

**SECTION B(THEORY)**

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

**Question 1**

1. Find the quadratic equations whose roots are
2. and 5 **(1 mark)**
3. and **(1 mark)**
4. Solve the equation 4y2 + 5y – 21 = 0, by factorization method. **(3 marks)**
5. **Solve** the equation 4y2 + 5y – 21 =0, by complete the square method**.(5 marks)**

**Question 2**

1. Calculate the area of the shaded segment of the circle shown below



Where <XOY = 630  **(5 marks)**

1. What is length of an arc which subtends an angle of 600 at the center of radius ? **(5 marks)**

**Question 3**

Given the general quadratic equation ax2 + bx + c = 0, where a ≠ 0 and a, b, c ԐR (R is real numbers), derive the general formulae for quadratic equation. **(10 marks)**

**Question 4**

Solve the equation x2 – 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***:

1. Draw a Venn diagram to illustrate this information **{3 marks}**
2. How many readers read
3. All the three papers, **{2 marks}**
4. Exactly two of the papers, **{2 marks}**
5. Exactly one of the papers, **{2 marks}**
6. 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

1. All brilliant lawyers are humorous.
2. No humorous lawyer is neat
3. No neat lawyer is brilliant
4. A humorous lawyer is brilliant **(10 marks)**