**THE UNITED REPUBLIC OF TANZANIA**

**PRESIDENT’S OFFICE**

**REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT – LINDI REGION**

**FORM FOUR LINDI MUNICIPAL MOCK EXAMINATIONS APRIL 2019**

**041 BASIC MATHEMATICS**

TIME 3:00HRS .

*INSTRUCTIONS*

1. This paper consists of two (2) sections A and B.
2. Answer all questions from section A and only four (04) questions from section B.
3. All necessary working and answers for each question done must be shown clearly.
4. Mathematical tables may be used.
5. Calculators and cellular phones are not allowed in the Examination room.
6. Write your Examination Number on every page of your answer booklet(s).
7. Use π = 3.14 and Radius of the earth (R) = 6370 km

**SECTION A (60 marks)**

Answer all questions from this section.

1: (a) Write 2.078698 in

1. 3 decimal place
2. 5 significant figures

 (b) Arrange the numbers 0.35, 50%, 0.25 and 0.33 in ascending order.

 (c) Three bells ring at intervals of 8 minutes, 6 minutes and 3 minutes respectively. If they started together at what time are they going to bring together?

2: (a) Simplify

1. -2

 Ii

 (b) Solve for y from

3: (a) Juma planted trees on each side of the road to his house. The road is long and th trees are 5m apart. How many trees did he plant?

 (b) Given that A and B are the two joint sets such that n(A)=18, n(B)=24 and

n(AuB)=29.Find:

1. n(AnB) (ii) n(A’nB) (iii) n(AnB’)

4: (a) Given that and . Find and its magnitude

 (b) The mid - point of a line AB is (2,1) if the coordinate of A is (3,-2). Find the coordinate of point B

 (c) Find the equation of a line passing through point (3,2) which is parallel to the line 6x -2y + 4 = 0

5: (a) From the figure below Find (i) EC (ii) CD

A

B

C

D

E

20 cm

24 cm

32 cm

40 cm

 (b) The length of a rectangle is twice the width of the same rectangle. Given the area of the same rectangle is also twice the length of the same rectangle. Find

1. The dimensions of the rectangle
2. The area of the given rectangle

6: a) Given that y is inversely proportional to x and k is the constant of Proportionality;

1. Write down a formula connecting y, x, n and k
2. If x=2,when y=12 and x=4 when y=3,write down two expressions for k in terms of n.
3. Find the value of n and k in (ii) above.

 (b) If the exchange rates on a given day was

 1USdollar=1500Tsh.

 1Swedish Kroner=180Tsh

 Convert:

 (i) 20 Swedish Kroner’s into US dollars

 (ii) 30 US dollars into Swedish Kroner’s

7: (a) By selling an article at Tsh 22,800/= a shopkeeper makes a loss of 10%. At what price must the shop keeper sell the article in order to get a profit of 10%?

 (b) An alloy consists of three metals A, B and C in the proportional A:B = 3:5 and B:C = 7:6 . Calculate the proportional A:C.

8: (a)Write down the next two terms of the sequence

 (b) In a certain Geometric progression, the third term is 18 and the sixth term is 486. Find the first term and the sum of the first six term of this Geometric progression

 (c) How many integers are there between 14 and 1,003 which are divisible by 17?

9: (a) Without using tables, simplify

 (b) )The foot of a straight ladder is 3m from the bottom of a vertical wall. When the lower end of the ladder is pulled away from the wall by1m, the upper end slides down by1m. Find the length of the ladder.

10: (a) If(a-b)2=20, and a2+b2=10, find the value of (ab) and (a+b)

 (b) If the sum of two numbers is 3 and the sum of their squares is 29. Find the numbers.

**SECTION B ( 40 Marks)**

Answer only **four (4)** questions from this section

11. Carefully study the frequency distribution table for the score of marks of 60 students.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class interval | 30 – 39 | 40 – 49  | 50 – 59  | 60 – 69  | 70 – 79  |
| Number of students | 12 | x  | x + 4 | 10  | 12 |

Find

1. The value of x
2. Calculate the average score
3. Use histogram to estimate the mode
4. (i) if the pass marks is 50 what percentage of students failed?

(ii) How many students passed the exam?

12. (a) If 0 is the centre of a circle below

1. Prove that X + Y =
2. If a =, find the value of X and Y

X

O

Y

b

a

 (b) Two points on the same meridian lie on latitude 90N and 110S. What is the distance between them in nautical miles?

 (c). A plane flying at 595km/hr leaves dar –es – salaam ( 70S, 390E) at 8:00am. When will it arrive at Addis Ababa ( 90N, 390E)

13. The figure below is a rectangular box with FG = 20cm, GH = 16cm and HD = 18cm. Find

1. The length FH
2. The angle that FD makes with the plane EHGF
3. Its total surface area

D

C

H

G

A

B

F

E

14. Study the trial balance by NDAMKO TRADING CO. as at December 2017. Prepare the trading and profit and loss accounts for the year 2017

|  |  |  |
| --- | --- | --- |
| ACCOUNT | DR | CR |
| CapitalMachinesMotor vehicleStock at startDebtorsCreditorsCashPurchasesSalesSalaries Office expensesWagesDrawings | 4,5505,52024,97020,96075571,6308,4171,3705639,500 | 41,59016,27590,370 |
| 148,235 | 148,235 |

 The following information was available at 31. 12. 2017

* Closing stock 27, 340
* Return outward 1,104

15. (a) Find the value of (x,y) given that

 (b). Enlarge the points (x,y) in 15 (a) by

 (c) A certain point (x,y) was rotated by 900 in the anticlockwise direction then followed by another rotation by 1800.

1. Find the matrix for this double transformation
2. Find the image of (-1,3) under this double transformation

16. (a)The function f is defined as f(x) =

1. Sketch the graph of f(x)
2. Determine the domain of f(x)
3. Find the value of f(-3) and f-1(3)

 (b) A box contains 4 oranges, 6 mangoes and 2 lemons. A fruit is drawn from the box and then replaced. Another draw is made. What is the probability that both fruits drawn are mangoes?