THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

IRAMBA DISTRICT COUNCIL FORM FOUR SERIES TWO EXAMINATION

041 BASIC MATHEMATICS

(For Both School and Private Candidates)

Time: 3 Hours Year: 2026

INSTRUCTIONS

1. This paper consists of sections A and B with a total of fourteen (14) questions.
2. Answer all questions in each section
3. Section A carries sixty (60) marks while section B carries forty (40) marks.
4. All writings must be in blue and black ink except drawings which must be in pencil.
5. All necessary working and answers for each question must be shown clearly.
6. Mathematical tables and non-programmable calculators may be used.
7. All communication devices and any unauthorized materials are not allowed in the examination room
8. Write your Examination Number on every page of your answer booklet(s).

This paper consists of 4 printed pages

SECTION A: (60 MARKS)

Answer all questions from this section

l . (a) Ille tramc lights at three different road crossing changes after every 48 seconds, 72 seconds and 108 seconds respectively. If they change simultaneously at 7:00 a.m. at what time will they change sinulltaneously again?

(b) If x 0.567567567... and y = 0.8± by converting these decimals to fractions, find the exact value of xy2—

n+3 (a) If $\left(\frac{1}{16}\right)$ -5 2.= 1 find the value of n

(b) Write "L" in terms of M, N and T from the formula —M 1

N 2 T-L

(c) Detennine the value of x if logs(x + 1) -1 -— logs(x— 3)

3. (a) Let g be a universal set and A ano B be the subsets of g, if g = {a, b, c, d, e, f, g, h) A= {c, g, f) and B= {b, d, h} find

(i) The number of subsets of set A

(ii) $n(A' \cap B)$

(b) Find the probability that a king appears in drawing single card from an ordinary deck of 52 cards.

4. (a) The coordinate of P, Q and R are (2, m), (-3, l) and (6, n) respectively. If the length PQ is 5A(i units, and the mid-point of QR is (2-,—1 ^{3}. Find the possible values of m and n.

(b) Given vector@ = — 6! + = 8i — 3j andg= 2 i + 2j

(i) The victor d = 3a — u + -c

(ii) A unit vector in the direction of vector d

5. (a) $\underline{KL}$ Given — — LC = CK = 3 where AB, BT and TA are the sides of the triangle ABT and KL, LC and CK are the sides of the triangle KLC. What does this information imply?

(b) A regular hexagon is inscribed in a circle. If the perimeter of the hexagon is 42 cm, find the radius of the circle and its area.

6. (a) Twelve people can dig a trench in 15 days for 8 hours daily. How long can they take to finish the same work, working for 10 hours daily?

(b) A variable V varies directly as the variable A and inversely as h. when and h=4, v=84.Find;

(i) V when A=9 and h=7

(ii) A when V=4.5 and h=0.5

of4

7. (a) If a: b=2:3 and b:c=5:6. Find a:c and a: b: c

(b) A hat is bought for Tsh 2,500/- and sold for Tsh 2,2()()/-. What is the percentage loss?

(c) Frotn the töllowing infortnation given by Mbeya Co. Ltd for the year ended 31 December 2021.

Stock (01.01.2021) . Three quarter of the closing stock

Stock (31.12.2021) . $\frac{2}{9}$ . . . . - of net purchase

Net purchases during 2021 432,000.

Gross margin..... 15%

Expenses .....20% of Net profit

Calculate;

(i) Cost of goods sold

(ii) Gross profit

(iii) Net profit

8. (a) If the 5^{th} term of an arithmetic progression is 23 and the 12^{dl} term is 37, find the first term and the cornrnon difference.

(b) In how many years would one double one's investment if Tshs 2500 is invested at 8% compounded semi -annually.

9. (a) Without the use of mathematical tables and calculators, find the value of

(i) $\cos 75^{0}$

(ii) $\sin 27^{0} \cos 18^{0} + \cos 27^{0} \sin 18^{0}$.

(b) A and B are two points on the ground level and both lie West of flagstaff. The angles of elevation of the top of the flagstafT from A are 56^{0} and from B is 43^{0}. If B is 28m from the foot of the flagstaff. How far apart are the points A and B?

10. (a) When the length of a rectangle whose perimeter is 90cm is increased by 20% and its width is decreased by 20% the area decreases by $20cm^{2}$. Find the dimensions of the rectangle.

$^{2}\_2 - 12$

(b) Solve for x and y if

$x+y=6$

SECTION B: (40 MARKS)

Answer all questions from this section

I 1 . (a) 'The marks in basic Mathematics terminal Examination obtained by 40 students in one of the secondary schools in Katavi were as follows;

60	54	48	43	37	61	43	66	65	52
81	70	48	63	74	67	52	48	37	48
43	52	52	22	27	37	38	29	19	37
42	47	36	52	50		28 44 .32 40 42			

of 4

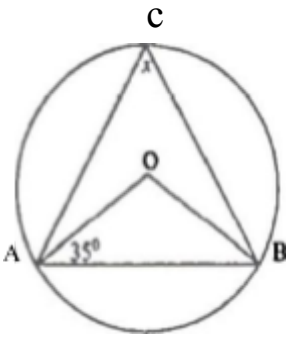
(i) Prepare a frequency distribution table ith class intervals 10 19, 20 - 29, etc.

(ii) Find the class which contain the Inedian

(iii) Find the mean

(iv) Calculate the Inedian.

(b) Find the value ofangle x in the figure below, where C) is the center of the circle.



12. (a) A Rectangular box with top WXYZ and base ABCD has ÄB = 9cm,bC = 12cm and WA = 3cm

Calculate

(i) The length AC

(ii) The angle between WC and ÄC

(b) Two places P and Q both on the parallel of latitude 26^0N differ in longitudes by 40^0, find the distance between them along their parallel of latitude. (use R=6370km)

13. (a) Find the value of y such that the matrix is singular.

$2x+y=7$

(b) Solve the following simultaneous equation by matrix method: $4x + 3y = 17$ (c) Find the image of (3, 5) after rotation of 270^0 about the origin in the anticlockwise direction.

1

14. (a) Given the function f(x) x-2 ' find,

(i) The domain and range.

(ii) f -1 C)

(b) Mr. Akililnali has 120 shillings to spend on exercise books. At the school shop an exercise book costs 8 shillings and at stationery store an exercise book costs 12 shillings. The school shop has only 6 exercise books left and the student ssants to obtain the greatest nujnber of exercise books possible using the Inoney he has. Find the greatest nunlber of exercise books he can buy.

of 4