

PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

KIBAHA DISTRICT COUNCIL



DISTRICT FORM FOUR MOCK EXAMINATION

CODE: 041

BASIC MATHEMATICS

TIME: 3:00 HOURS

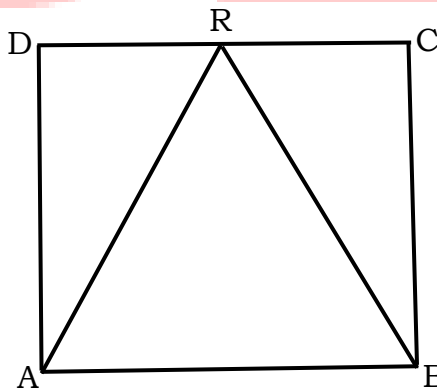
2025

Instructions.

1. This paper consists of two sections A & B with a total of 14 questions.
2. Answer all questions from each section
3. Section A carries **60** marks while section B carries **40** marks.
4. Write your index number on every page of your answer sheet (booklet)
5. Non- programmable calculators and mathematical tables may be used
6. Whenever necessary use Radius of the earth $R = 6370$ Km and $\pi = 3.14$

SECTION A (60 Marks)

1. (a) Mr. Tumai Distributed Tshs 960,000/= awards to students who passed well in their examinations and their respective teachers as follow: 23% to all students who passed Arts Subjects. 15% to students who passed Mathematics and 27% to students who passed science subjects. The remained amount was distributed to teachers. Find the amount that were awarded to teacher
(b) Three bells commence tolling together and toll at intervals of 8, 10 and 12 seconds respectively. How many times do they toll together in 50 minutes?
2. (a) Solve the equation $\log_4 5x - \log_4(x + 2) - \log_4 3 = 0$
(b) If $(3^{x+1}) \times (2^{2y+9}) = 69,984$ find the values of $x + y$
3. (a) In a group of 29 tourists from different countries, 17 went to Manyara National Park, 13 went to Mikumi National Park, and 8 went to neither Mikumi nor Manyara National parks. How many tourists went to both National Parks (Use only formula)
(b) If a tourist is picked randomly find the probability that the tourist visited either Manyara or Mikumi National park.
4. (a) The line from $(x_1, 2)$ to $(4, y_2)$ has its midpoint at $(2, 2)$ Find the values of x_1 and y_2
(b) Find the equation of the line passing through the point $(6, 4)$ and perpendicular to the line whose equation is $12x + 6y = 9$
5. (a) Calculate the cost of making 1metre- wide path round a circular pool of radius 10 meters, if the cost is 80, 000 shillings per square meter.
(b) In the figure below ABCD is a square. If $\overline{AR} = \overline{BR}$ prove that R is the midpoint of $\overline{DC}$



6. (a) Study the following the following table and answer the question that follows.

Hours Worked	2	3	4	5
Earning (TSH)	1150	1725	2300	2875

- (i) Do earning varies directly as the number of hours worked?

(ii) If so, calculate the constant of variation and write an equation that describe the relationship

(b) A car travel 60 km using 5 liters of diesel. How many liters of diesel are needed to travel 150 kilometers?

7. (a) The marked price of a Laptop computer is sh. 1,500,000/=. A trader sold it to a customer at a discount of 10%. If the trader still made a profit of 20% on the cost price, what was the cost price?

(b) Prepare the balance sheet as at 31st December 2020 from the following balances Goodwill 5000/=:, creditors 10,000/=:,Cash at bank 6,000/=:,Debtors 2,500/=:, cash in hand 1,500/=:,Capital 70,000, Motor vehicle 25,000/=:,building 45,000/=:, Net loss 5,000/=:, Drawing 5,000/=:,Loan from bank 20,000/=: and closing stock 5,000/=:

8. (a) Chairs in a conference room are arranged such that the first row has 18 chairs and each of the proceeding rows has two more chairs than the row in the front of it. If there are 40 rows altogether. Find the total number of chairs in this room.

(b) A ball falls 3.2 m .If after each fall it re-bounces three quarters the distance it has fallen, how far the ball travels in re- bouncing five times.

9. (a) The surveyor found that the angle of elevation of the top of the building was 20° when he moved further 20 m away from the building the angle of elevation became 15° . Find the height of the building.

(b) Rectangular frame is made of wooden bars. The diagonal of the frame is 25cm and it's width is 15cm. Find length of the frame.

10. (a) Asha is three years older than her brother Juma. Three year years to come the product of their ages will be 130 years. Find their present age.

(b) Factorize the expression: $a^2 - b^2$. Use the result to evaluate $(1005)^2 - 995 \times 994$

SECTION B (40 Marks)

11. (a) The table below shows the mass of 40 students in form four Class

Mass in Kg	41-45	46-50	51-55	56-60	61-65	66-70
No. of students	3	7	12	$x + 4$	x	$x - 4$

(i) Calculate the value of x .

(ii) Prepare a frequency distribution table.

(iii) Calculate the mean mass of students.

(iv) Draw a cumulative frequency curve and use it to estimate the median.

(b) Prove that “any inscribed angle subtended in a semi-circle is a right angle”.

12. (a) A boat sails from Unguja ($4.5^{\circ}\text{S}, 39.5^{\circ}\text{E}$) to Dar es Salaam ($7.5^{\circ}\text{S}, 39.5^{\circ}\text{E}$). If it leaves Unguja at 11.30 a.m and arrived in Dar es Salaam at 13.30 p.m, find the speed of the boat in km/h. use $\pi = 3.14$ and the radius of the earth 6370km.
- (b) (i) A cylindrical metal rod measuring 25 cm in diameter and 2160 cm long was melted into a cylinder rod of diameter 10cm. What is the length of the new rod in meters?
- (ii) A cylindrical tank with an open top has a radius of 77 cm and height of 121 cm. If the tank is half-full of water, calculate the volume of water in the tank.
13. (a) The bag contain twenty coins. All the coins are either Tsh 50coins or Tsh 100 coins. If the total value of the money in the bag is Tsh 1550, find the number of coins of each kind (**by using any method**).
- (b) A translation takes every point a distance 1 unit to the left and two units downward. Find where it takes.
- (i) the point (3, 7)
- (ii) the point (-5, 3)
14. (a) Given the function $f(x) = 4 - 3x - 2x^2$ write the function in the form of $y = a(x - b)^2 + c$ and state the values of **a**, **b** and **c**.
- (b) A firm makes curtains which are either ordinary or deluxe. Each ordinary curtain takes 3 hours to produce and uses 6m of material, and each deluxe curtain takes 6 hours to produce and uses 7m of material. The workers of the firm can work for a total of 60 hours and there is 90m of material available. If the profit on ordinary and deluxe curtains is 4,000 Tshs and 6,000Tshs respectively. Find how many of each should be made to maximize profit.