GATITU MIXED SECONDARY SCHOOL

MATHEMATICS FORM 3 END OF TERM 3 2015 EXAM

SECTION 1: ANSWER ALL QUESTIONS IN THIS SECTION

1. Make z the subject of the formula in; 3mks

H= (W+X)Z

 5

1. Solve the equation below using completing the square method. 3mks

3X2 + 5X = -2

1. Solve the equation sin x =0.8469 for 0≤x ≤ 360 2mks
2. Simplify (1+$√3)$ ( 1- $√3)$ hence evaluate 1/1 +$√$3 to 3 s.f given that $√3$ =1.7321 3mks
3. Find the value of x given that log (x + 1) + 2 = log (3x +2) + log 25 3mks
4. Use the expansion of (x – y)5 to evaluate (9 -8)5 correct to 4 decimal places 3mks
5. Given that A ( 2x x 2 )determine the value of x for which A has no inverse 3mks
6. The dimensions of a rectangle are measured and given as 6.9 cm by 3.06 cm. calculate the relative error in its area given your answer correct to four significant figures. 4mks
7. Find the compound interest earned on sh 18,000 invested for 2 years at 20% p.a compounded quarterly. 4mks
8. The seventh term of an arithmetic sequence is 14 and its fifteenth term is 30. Find the 19th and 50th term. 4mks
9. A bag contains 12 green balls and the rest are red , if a ball is picked at random, the probability of it being green is 0.75. find the number of red balls.(3mks)
10. An angle of 1.8 radians at the centre of the circle subtends an arc length of 23.4 cm. find
11. The radius of the circle in cm 3mks
12. The area of the sector enclosed by the arc and the two radii 2mks
13. Two baskets A and B each contains a mixture of arranges and lime all the same colour . Basket A contains 26 oranges and 13 limes. Basket B contains 18 oranges and 13 limes. A child selected a basket at random.
14. Illustrate this information using a tree diagram 2mks
15. Find the probability that the fruit picked was an orange. 3mks
16. The third term of a geometric sequence is 24 and its fifth term is 864.
17. Write down the first term of the sequence . 3mks
18. Hence, find the sum of the first 8 terms of the series. 2mks

***SECTION II***

***ANSWER ANY FIVE QUESTIONS IN THIS SECTION***

1. Three partners Amina, Bosire and Karuri contributed a total of ksh 4800 000 in the ration 4:5:7 to buy an 8 hectares piece of land. The partners set aside ¼ of the land for social amenities and sub divided the rest into 15m by 25 m plots.
2. Find:
3. The amount of money contributed by Karuri; 2mks
4. The number of plots that were obtained. 3mks
5. The partners sold the plots at ksh 50 000 each and spent 30% of the profit realized to pay for administrative costs. They shared the rest of the profit in the ratio of their contributions.
6. Calculate the net profit realized. 3mks
7. Find the difference in the amount of the profit earned by Amina and Bosire. 2mks
8. In a retail shop, the market price of a cooker was ksh 36,000.wanandi bought the cooker on hire purchase terms. She paid 6400 as deposit followed by 20 equal monthly instalments of ksh1750.
9. Calculate
10. The total amount of money she paid for the cooker. 2mks
11. The extra amount of the money she paid above the market price. 1mk
12. The total amount of money paid on hire purchase terms was calculated at a compound interest rate on the marked price for 20 months. Determine the rate, per annum , of the compound interest correct to 1 decimal place . 4mks
13. Kaloki borrowed ksh 36000 from a financial institution to purchase a similar cooker. The financial institution charged a compound interest rate equal to the rate in (b) above for 24 months. Calculate the interest kaloki paid correct to the nearest shilling. 3mks
14. In the figure below,OA = 8.4cm, AC = 7 cm, < AOB = 72 and < ACB = 90



Calculate

1. The area of intersection of the two circles 4mks
2. The area of the quadrilateral OACB 3mks
3. The area of the shaded region 3mks
4. The table below shows income tax rates for a certain year

|  |  |
| --- | --- |
| Taxable income in ksh per month | Rate of tax (%) |
| 1-10164 | 10 |
| 10165- 19740 | 15 |
| 19741- 29316 | 20 |
| 29317- 38892 | 25 |
| Over 38892 | 35 |

In a particular month that year, Ng’eno got ahouse allowance of sh 12,000, a relief of sh 1056 and paid a PAYE of sh. 8040. Calculate ;

1. His gross tax 2mks
2. His taxable income to the nearest shillings 6mks
3. His basic salary per month 2mks
4. The figure below shows a cone with a vertex at A and diameter 13 cm. the cone is cut off along DE as shown below.



1. Find the vertical height AO 2mks
2. Find the curved surface area of the frustrum. 4mks
3. Find the volume of the frustrum. 4mks
4. A square has vertices A(3,0), B (1,3), C(4,5) and D (a,b). find the value of a a and b. 10mks



1. A clothes dealer sold 3 shirts and 2 trousers for sh 840 and 4 shirts and 5 trousers for sh 1680.
2. Form a matrix equation to represent the above information. 3mks
3. Use the matrix equation to find the cost of a shirt and a trouser. 7mks
4. A number of people decided to contribute sh. 800 towards a charity fund. They agreed to contribute each an equal amount of money. Four of them withdrew from the venture. As a result , each of the remaining people had to contribute sh. 10 more to reach the target . calculate;
5. The original number of people for the charity fund. 7mks
6. The amount of money each contributed after the withdrawal of the four. 3mks