

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2016/2017**

FIRST YEAR FIRST SEMESTER/ FIRST YEAR SECOND SEMESTER/ END OF SEMESTER UNIVERSITY EXAMINATION FOR THE DIPLOMA IN INFORMATION TECHNOLOGY/ BUSINESS ADMINISTRATION/ PURCHASING AND SUPPLIES MANAGEMENT/ COUNTY GOVERNANCE

**DIT 0106/ SMA 1150: BASIC MATHEMATICS**

**DATE: JULY, 2017 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER**

 **ONE QUESTION**

a. Define the terms mode and median and hence find the mode and median of the following data: 6,7,9,8,6,3,7,6,6,8. (4 marks)

b. Evaluate   (4 marks)

c. Solve for  in (3 marks)

d. Use matrices to solve the following pair of equations:- (4 marks)

 

e. Johana wants to have Ksh. 30,000 in 5 years. How much money must he invest now if the rate of interest is 7.5% p.a compound interest. (4 marks)

f. A salesman get a salary of sh. 16,500 and a commission of 5% and 7% for goods sold up to sh. 50,ooo and beyond respectively. In one month, he sold goods worth sh. 200,000. What was his total earnings. (4 marks)

g. Evaluate:- (4 marks)

 

h. If A= , and B find 2 AB (3 marks)

**QUESTION TWO: 20 MARKS**

a. Distinguish between simple interest and compound interest. (4 marks)

b. The cash price of a generator is sh. 40,000. A customer made a down payment of sh. 20,000 and 20 monthly installments of sh. 1,500 each. Calculate:-

 i. Total hire purchase price. (2 marks)

 ii. The carrying charge. 93 marks)

 iii. The rate of interest. (5 marks0

c. Find the accumulated amount for sh. 65,000 invested for two years and six months at 12% p.a compounded quarterly. (6 marks)

**QUESTION THREE: 20 MARKS**

a. In a certain college there are 12 female students taking a certificate programme and 8 male students taking the same programme. The probability of a male student completing the programme is 0.75 and that of a female student note completing the programme is 0.35. A student is chosen at random:-

 i. Draw a tree diagram for this situation. (2 marks)

 ii. The student chosen does not complete the programme. (5 marks)

iii. A male student is chosen and completes the programme. (3 marks)

iv. Suggest three possible reasons for the non-completion of the programme in (ii) above. (5 marks)

**QUESTION FOUR: 20 MARKS**

a. i. A fruit-seller bought  apples for a total cost of sh. 300. Write

 down an expression for the average cost of each apple.

(1 mark)

ii. He found two of the apples were bad and sold the rest receiving

for each apple shs. 3 more than he paid for it. Write down an

expression for the selling price of each apple. (2 marks)

iii. If he made a profit of shs. 132 form an equation for  and solve

it. (7 marks)

iv. How many apples remained when the bad ones were removed. (1 mark)

b. The distance x meters moved by a car in time t seconds is given by:-

 x= . Determine the velocity and acceleration of the car

 (9 marks)

 i. in t=0 seconds

 ii. In t=1.5 seconds