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**University Examinations 2015/2016**

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE DIPLOMA IN BUSINESS ADMINISTRATION

**SMB 2200: BASIC MANAGEMENT MATHEMATICS**

**DATE: APRIL 2016 TIME:11/ 2 HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. Define the following terms as used in management mathematics.
2. Set (1 mark)
3. Compliment of a set (1 mark)
4. Domain (1 mark)
5. Intercept (2 mark)
6. Let  denote the universal set and let  and . Find
7.  (2 marks)
8.  (2 marks)
9.  (2 marks)
10. The quantity of a cooking oil supplied is given by the following relationship. where Q is the supply and p is the price
11. Graph the function (3 marks)
12. What quantity of the cooking oil is supplied at ksh 8 (1 mark)
13. Explain the relationship between the price and supply of cooking oil. (1 mark)
14. Solve the following equation (3 marks)
15. Find the limiting value  as  (3 marks)
16. Factorize  (3 marks)
17. Solve the inequalities (3 marks)
18. Solve for x

 (2 marks)

**QUESTION TWO (15 MARKS)**

1. A furniture selling company advertises goods at ksh 70000 deposit and three further equal annual payments of ksh 50000. If the discount rate is 7.5%, calculate the present value of the goods. (4 marks)
2. Analyze the continuity of at  for  for  (3 marks)
3. Given that  and  and the corresponding universal set . Show that  (4 marks)
4. Solve by completing the square method (4 marks)

**QUESTION THREE (15 MARKS)**

1. An entertainment circus charges ksh 40 for children and ksh 80 for adults. In a certain weekend 1000 people attended the circus and the total amount collected was ksh 62600. Find the number of children and adults who attended if x represent children while y represents adults. (5 marks)
2. Evaluate the following polynomial function (2 marks

 at $x=2$

1. Evaluate the following
2.  (2 marks)
3.  (2 marks)
4. Given a set 
5. How many subsets can be constructed form this set. (1 mark)
6. Write down all the subsets of R (3 marks)

**QUESTION FOUR (15 MARKS)**

1. The swimming club of a Meru University of Science & Technology has a total number of 25 members. 18 of the members dive from 10m while 17 dive from 4m. Calculate using a Venn diagram the number of members who dive from both 10m and 4m. (5 marks)
2. Given that the fourth term of an arithmetic progression is 12 and the seventh term is 24.
3. What is the first term and the common difference? (3 marks)
4. If the sum of the first M terms is 24, find the value of m (3 marks)
5. Derive the quadratic formula using . (4 marks)

**QUESTION FIVE (15 MARKS)**

1. Evaluate the following by applying suitable logarithmic rules  (3 marks)
2. Find the 10th term of the following geometric progression 1, 2, 3, 8, 16 (4 marks)
3. Solve the following pair of simultaneous equation (3 marks)
4. 
5. 
6. Define time value of money and discuss why money is important now than in future. (5 marks)