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**University Examinations 2015/2016**

FIRST YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN INFORMATION TECHNOLOGY

**CIT 2155: INTRODUCTORY MATHS FOR SCIENCE**

**DATE: AUGUST, 2016 TIME:** $1½$**HOURS**

**INSTRUCTIONS:** *Answer question* ***one y*** *and any other* ***three*** *questions*

**QUESTION ONE (30 MARKS)**

1. Define the following terms as applied in mathematics:
2. Probability (1 Mark)
3. Set (1 Mark)
4. An error (1 Mark)
5. Given the sets and Find:
6. $A^{c}$ (1 Mark)
7. $A-B$ (1 Mark)
8. $A∩B$ (1 Mark)
9. $A^{c}UB$ (1 Mark)
10. Find the percentage error in calculating the area of a rectangle whose length is 6.5cm and width is 5cm. (4 Marks)
11. Solve and represent the solution on a number line  (3 Marks)
12. Solve : (3 Marks)
13. A school has 16 boys and 22 girls. Find the probability of picking 2 girls and 1 boy to represent the school in a debating competition. (3 Marks)
14. Evaluate  (3 Marks)
15. Mwenda deposited Ksh 10,000 in a bank that paid 10% compound interest p.a . Find the amount after 2 years, if the amount is compounded semi annually. (4 Marks)
16. Given , find  (2 Marks)
17. State one application of sets. (1 Mark)

**QUESTION TWO (10 MARKS)**

1. A bag contains 4 red, 5 white and 3 black marbles of the same kind. Two marbles are picked randomly form the boy without replacement.
2. Draw a tree diagram to represent the above information. (3 Marks)
3. Find the probability of picking two marbles of the same colour. (2 Marks)
4. What is the probability of picking :
5. Two marbles of different colours? (2 Marks)
6. Atleast a white marble. (3 Marks)

**QUESTION THREE (10 MARKS)**

Find the stationary point of the curve, Distinguish between the maxima and minima and sketch the curve. (10 Marks)

**QUESTION FOUR (10 MARKS)**

1. Show the region that satisfies the inequalities  and x > -1(6 Marks)
2. Draw Venn diagrams to represent the sets A,B and C below; (4 Marks)
3. $A∩B∪C$
4. $A^{c}$
5. $A-B$

**QUESTION FIVE (10 MARKS)**

1. On the grid provided, draw the graph of hence use your graph to solve the equation  (7 Marks)
2. A vehicle was valued for Ksh 2.5m in 2007. Find its value in 2012 if the rate of depreciation was 7.5% p.a. (3 Marks)