

Question One

- a) Explain the meaning of each of the following terms as used in Set Theory:
- i) Subset
 - ii) Null Set
 - iii) Union of a Set
 - iv) Disjoint Set (8 Marks)
- b) What is Capital Investment appraisal? Briefly explain three reasons why Capital Appraisal is important. (7 Marks)
- c) Bulleti is a professional rugby player. He estimates that his career will last for a maximum of 8 years. He has decided to deposit Kes 40,000 at the beginning of every year at a compounded interest rate of 12% paid semi annually. How much money will he have in his account at the end of 8 years. (5 Marks)
- d) Arthur borrowed Kes 495,000 to be repaid at the end of six years. The amount of interest payable at the end of the period was Kes 195,500. What was the rate of interest applied? (5 marks)
- e) Solve the equation:
 $8x^2 - x - 6 = 0$ (5 marks)

Question Two

- a) Amani County has three major daily newspapers; The News, The Sun and Daily Express. A survey of 400 families was conducted in 2016 and the findings were as tabulated below:

	Newspaper	N° of Readers
1	The News	168
2	The Sun	120
3	Daily Express	112
4	Sun & Daily Express	32
5	Daily Express & The News	40
6	The Sun & The News	20
7	All 3 dailies	12

- i) Represent the information provided in a Venn diagram. (4 marks)
 - ii) What is the number of families that did not read any of the newspaper? (3 Marks)
 - iii) Advice Baridi Ice-Cream makers the newspaper with the highest readership for the purpose of advertising their ice-cream. (3 marks)
- b) i) What are simultaneous equations? (2 marks)
- Coffee Room serves tea and coffee with different types of snacks. 4 cups of coffee and 2 mandazi cost Kes 120. 2 cups of coffee and 4 mandazi also cost Kes 120.
- ii) Using this information, formulate two simultaneous equations. (4 Marks)

- iii) What would the price of a cup of coffee and a ndazi cost? (2 Marks)
- iv) How much would 6 cups of tea and 8 mandazi cost? (2 Marks)

Question Three

- a) Explain four reasons why rational people prefer a shilling today rather than in the future. (8 Marks)
- b) Equipment Developers Ltd is considering buying a machine in order to increase its production capacity two alternatives have been proposed. Each Machine will cost Kes 450,000. The expected cashflows after Corporation tax are tabulated below:

Year	Cash Flows (Kes)	
	Machine A	Machine B
1	45,000	130,000
2	120,000	155,000
3	160,000	200,000
4	240,000	125,000
5	150,000	80,000

The company's target return on capital is 10%.

- i) Compute the Net present Value (NPV) and the profitability index for each machine. (10 Marks)
- ii) Which Machine would you recommend to be purchased? (2 marks)

Question Four

- a) What is a linear Function? (2 marks)
- b) Solve the equation:

$$4(8x-4) = 6(x +4)$$
 (3 marks)
- c) Outline 5 disadvantages of Internal rate of Return (IRR) (5 marks)
- d. Solve the equation:

$$\frac{1}{x-1} + 3 = \frac{1}{x+2} - \frac{1}{4}$$
 (5 marks)
- e. Briefly explain 5 characteristics of Long Term investments. (5 marks)