TECHNICAL UNIVERSITY OF MOMBASA
SCHOOL OF BUSINESS
DEPARTMENT OF ACCOUNTING AND FINANCE
UNIVERSITY EXAMINATION FOR:
BTME,BTCE, BSCE &BSEE SECOND YEARS

BFI 4204: ECONOMICS AND ACCOUNTING FOR ENGINEERS
END OF SEMESTER EXAMINATION

SERIES: APRIL 2022 **TIME:** 2 HOURS

INSTRUCTION: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS.

(a) (i) Clearly explain the distinction between supply, demand and equilibrium price (4 marks)

(ii) State and explain any four main factors that may cause a fall in the supply of a good in the market. (2 marks)

(iii) The table below shows the demand and supply schedules for a product.

Price (sh. per kg)	Demand (kg)	Supply (kg)
10	100	20
20	85	36
30	70	53
40	55	70
50	40	87
60	25	103
70	10	120

Required;

Plot the demand and supply curves and determine the equilibrium price and quantity. (4 marks)

(b) Write short notes on the following fundamental concepts in economics:

(i) Scarcity and choice (4 marks)

(ii) Opportunity cost (3 marks)

(iii) Cross-elasticity of demand (3 marks)

(c) Wamba Ltd has drawn up the following budget for its next accounting period:

Selling price per unit	Sh. 1,160
Variable production cost per unit	Sh. 340
Sales commission	5% of selling price
Fixed production costs	Sh. 43,050,000
Fixed selling and administration costs	Sh. 19,815,000
Sales	90,000 units

Required;

(i) Determine the margin of safety in percentage of budgeted sales. (5 marks)

(ii) The marketing manager has indicated that an increase in the selling price to sh. 1,225 per unit would not affect the number of units sold, provided that the sales commission is increased to 8% of the selling price.
Determine the breakeven point (to the nearest whole number) following the above changes. (5 marks)

(Total = 30 marks)

QUESTION 2

A company presents the following data relating to two investment projects, only one of which may be selected:

	Project A	Project B
	Sh000	Sh000
Initial capital expenditure	50,000	50,000
Profit/(loss) year 1	25,000	10,000
2	20,000	10,000
3	15,000	14,000
4	10,000	26,000
Estimated resale value at end of year 4	10,000	10,000

Notes:

1. Profit is calculated after deducting straight line depreciation.
2. The cost of capital is 10%.

Required;

(a) Calculate for each project:

(i) Average annual rate of return on average capital invested; (5 marks)

(ii) Payback period; (5 marks)

(iii) Net present value. (5 marks)

(b) Explain which project you would recommend for acceptance. (5 marks)

(Total = 20 marks)

QUESTION 3

The transport department of Mombasa County Government operates a large fleet of vehicles. These vehicles are used by the various departments of the County. Each month a statement is prepared for the transport department comparing actual results with budget. One of the items in the transport department's monthly statement is the cost of vehicle maintenance. This maintenance is carried out by the employees of the department. To facilitate control, the transport manager has asked that future statements should show vehicle maintenance costs analyzed into fixed and variable costs.

Data for the six months from January to June inclusive are given below.

	Vehicle maintenance Cost Sh	Vehicle running hours
January	13,600	2,100
February	15,800	2,800
March	14,500	2,200
April	16,200	3,000
May	14,900	2,600
June	15,000	2,500

Required;

(a) Analyze the vehicle maintenance costs into fixed and variable costs, based on the data given, utilizing the least squares regression analysis method. (13 marks)

(b) Discuss the conditions that should apply if linear regression analysis is to be used to analyze cost behaviors. (7 marks)

QUESTION 4

(a) Distinguish between own-price elasticity of demand and cross-elasticity of demand. (10 marks)

(b) Discuss the factors that affect the own-price elasticity of demand. (4 marks)

(c) Discuss the usefulness of these parameters in management and economic policy decision-making. (6 marks)

QUESTION 5

One of the divisions within Nissan Autos is currently negotiating with another supplier regarding outsourcing component A that it manufactures. The division currently manufactures 10,000 units per annum of the component. The cost currently assigned to the components are as follows:

	Total cost of producing 10,000 components	Unit cost
	Sh000	Sh000
Direct materials AB	120,000	12
Direct labour	100,000	10
Variable manufacturing overhead costs (power and utilities)	10,000 `	1
Fixed manufacturing overhead costs	80,000	8
Share of non-manufacturing overheads	50,000	5
	360,000	36

The above costs are expected to remain unchanged in the foreseeable future if the Nissan Autos division continues to manufacture the components. The supplier has offered to supply 10,000 components per annum at a price of sh. 3,000 per unit guaranteed for a minimum of 3 years. If Nissan Autos outsources component A, the direct labour force currently employed in producing

the components will be made redundant. No redundancy costs will be incurred. Direct materials and variable overheads are available if component A is outsourced.

Fixed manufacturing overhead costs would be reduced by sh. 10 million per annum but non-manufacturing costs would remain unchanged. Assume initially that the capacity that is required for component A has no alternative use.

Required;

Determine if the division Nissan Autos should make or buy the component . (10 marks)

(b)Assume now that the extra capacity that will be made available from outsourcing component A can be used to manufacture and sell 10,000 units of component Z of a price of Sh. 3,400 per unit. All of the labour force required to manufacture component A would be used to make component Z.The variable manufacturing overheads, the fixed manufacturing overheads and non-manufacturing overheads would be the same as the cost incurred for manufacturing component A. Materials AB required to manufacture component A would not be required but additional materials XY required for making component Z would cost sh. 1,300 per unit.

Required:

Determine if Nissan Autos should outsource component A (10marks)

(Total 20 marks)