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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY  
UNIVERSITY EXAMINATIONS, 2020/2021 ACADEMIC YEAR  
THIRD YEAR, FIRST SEMESTER EXAMINATION  
FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY**

**KBA 2305 - BUSINESS ECONOMICS**

Date: 18<sup>th</sup> December, 2020  
Time: 2.30pm – 4.30pm

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

- a) The firm has a production function expressed as  $Q = 10K^{0.3}L^{0.7}$

Where Q = Output  
K= Capital  
L = Labour

To hire one unit of labour the firm pays Shs. 500 and to hire one unit of Capital the firm will pay Shs. 300. The firm has a total of Shs. 15,000 to spend on the two inputs.

Required;

- i) Formulate the problem if the firm wants to maximize output given the cost. (4 Marks)  
ii) Determine the optimal units of labour and capital and hence maximum output. (12 Marks)
- b) Using a well labelled diagram explain the three stages of production. (8 Marks)
- c) Explain three determinants of demand in the market. (6 Marks)

## **QUESTION TWO (20 MARKS)**

- a) Risk is an important component in business. Explain two methods that the firm can apply in order to incorporate risk in its business valuation. (4 Marks)
- b) Robinson has estimated the following demand function for its world famous product  $Q = 62 - 2P + 0.2I + 25A$  where Q = Quantity demanded, P = Price of the product, I = Income and A = Advertisement. Assume that the initial levels are P = 4, I = 150 and A = 4.
- Required
- i) Interpret the demand function (6 Marks)
- ii) Calculate the point elasticity of demand and interpret the results (5 Marks)
- iii) Calculate the income elasticity of demand. What kind of good is the product? (5 Marks)

## **QUESTION THREE (20 MARKS)**

QP Ltd intends to undertake a project estimated to cost Shs. 800,000. Its stream of earnings before depreciation and taxes during first year through year five is expected to be Shs. 200,000, Shs. 240,000, Shs. 280,000, Shs. 320,000 and Shs. 400,000. The salvage value at the end of year five is expected to be Shs. 160,000. Assume a 30% tax rate and depreciation on straight-line basis. Cost of capital is 12%.

### **Required:**

Compute the projects

- i) Net cash flow for each year (5 Marks)
- ii) Payback period (3 Marks)
- iii) Accounting Rate of Return (3 Marks)
- iv) Net Present Value (3 Marks)
- v) Profitability Index (2 Marks)
- vi) Internal Rate of Return (use new rate of 20%) (4 Marks)

**QUESTION FOUR (20 MARKS)**

- a) A firm has analyzed its operating conditions and has developed the following functions

$$\text{Total Revenue} = -1Q^2 + 20Q$$

$$\text{Total Cost} = Q^2 - 2Q + 10$$

Where  $Q$  is the number of units produced and sold Determine the value of break-even point of the firm (10 Marks)

- b) Using a well-labelled diagram explain the short-run equilibrium of a firm under perfect competition making supernormal profits. (10 Marks)

**QUESTION FIVE (20 MARKS)**

Sweet waters limited finance manager is considering buying stocks X and Y being sold in Nairobi Securities Exchange

State of Economy	Probability	Returns (%)	
		Stock X	Stock Y
A	0.1	-18	28
B	0.2	20	-8
C	0.4	16	12
D	0.2	10	30
E	0.1	-8	40

Required;

- i) Calculate the expected returns for each stock. (4 Marks)
- ii) The expected return of the portfolio when 40% of total wealth is invested in Stock X and 60% in stock Y. (2 Marks)
- iii) Calculate the variance and standard deviation for each stock. (6 Marks)
- iv) The portfolio risk given that the correlation coefficient between Stock X and stock Y is -0.612 assuming a weight of 40% and 60% for X and Y respectively. (4 Marks)
- v) Calculate the coefficient of variation for each stock. (4 Marks)