

BOWEN UNIVERSITY
COLLEGE OF SOCIAL AND MANAGEMENT SCIENCES
ECONOMICS PROGRAM
B.Sc. DEGREE EXAMINATION
FIRST SEMESTER, 2018/2019

Course Code: ECN 401 (3 credits)
Date: 10th March, 2022

Course Title: Advanced Microeconomics
Time Allowed: 3 hours.

Instruction: Answer Question 1 and any other three questions

25 marks

1. Suppose Mr Eze has the utility function for goods X and Y stated as $U(x, y) = AX^\alpha Y^\beta$ where $A=50$, $\alpha = \frac{1}{2}$ and $\beta = \frac{1}{2}$. If Mr Eze's daily income $M = \text{₦}20,000$ with the unit prices of goods X and Y given as $P_x = \text{₦}12$, and $P_y = \text{₦}15$.
- i. What type of utility function is depicted above? 1 marks
 - ii. Derive Mr Eze's uncompensated demand function for goods X and Y 5 marks
 - iii. Obtain his indirect utility function 2 marks
 - iv. Derive his Hicksian demand function. 5 marks
 - v. Suppose that P_x rises to $\text{₦}13$. Compute the total effect of the price change and decompose into income and substitution effects. 5 marks
 - vi. State any two properties of the indirect utility function and the expenditure function. 2 marks
 - vii. Using diagrammatic representation, distinguish between the income and substitution effect of a fall in price for a normal, inferior and giffen good 5 marks

25 marks

2. Assume a perfectly competitive firm has the production function using input X and Y is given as $Y = 5x^{0.5}y^{0.5}$. If the firm cost function is stated as $20,000 = 12X + 15Y$.
- Using the information above, obtain
- i. The unconditional input demand function of the firm 4 marks
 - ii. The optimal output supply function 2 marks
 - iii. The profit function 2 marks
 - iv. The conditional input demand function. 4 marks
 - v. State any three properties of the cost and profit functions 3 marks

———15 marks

3. Suppose two firms operating as a Cournot duopoly have different costs and each chooses different output levels. If the inverse demand function of the firms is given as $P = 50 - 2Q$, the cost functions of firm 1 and 2 are $C_1 = 10 + 2q_1$ and $C_2 = 12 + 8q_2$ respectively. You are required to
- i. Obtain the reaction function of firm 1 and 2 4 marks
 - ii. Derive the profit maximizing unit of output for firm 1 and 2 4 marks
 - iii. Obtain the profit of each firm. Explain your result in relation to the production cost of each firm. 4 marks
 - iv. Explain any three features of an oligopoly stating two examples of this market type in Nigeria 3 marks

4. A monopolistic competitive market combines the elements of a monopoly and perfect competitive market

- i. Using graphical illustration, distinguish between the model of monopolistic competition and a monopolistic competitive market and a perfect competitive market? 3 marks

Consider a monopolist who faces a linear demand function: $p = 1000 - 40q$ and produces at a constant marginal cost of ₦20. Assume that her total cost function is given by: $C = 500 + 200q$. Determine the long run profit maximizing unit of output of the monopolist if it operates in:

- ii. A monopolistic market 4 marks
 iii. A perfect competitive market 4 marks
 iv. A monopolistic competitive market. 4 marks
 Explain your result.

15 marks

5. In the application of consumer theory to work and leisure, it is evident that individuals do not obtain utility just from products they purchase, they also obtain utility from leisure time. In line with this position provide clear explanation to

- i. The substitution and income effect of a rise in wage rate. (5 marks)
 ii. It has been empirically observed that when the wage rate is small, the demand for more income or goods and services is very strong how will the substitution effect and income effect of a rise in wage rate in this case affect leisure time and the supply of labor? (5 marks)
 iii. Using diagrammatic representation, clearly distinguish between the income and substitution effect of a price change for a normal, inferior and a giffen good. 5 marks

15 marks

6. Clearly explain the terms

- i. Externalities and market failure 2 marks
 ii. Externalities and public goods 2 marks
 iii. Zero sum game 2 marks

Consider a simultaneous game between individual A and B with three strategy choice given as

		Player A		
		L	M	R
Player B	L	1,1	3,4	2,1
	M	2,4	2,5	8,1
	R	3,3	0,4	0,9