



**UNIVERSITY OF RUHUNA**

**Faculty of Engineering**



End-Semester 3 Examination in Engineering: March 2021

**Module Number: IS3303**

**Module Name: Basic Economics**

**[Three Hours]**

[Answer **all questions**, each question carries ten marks]

Q1. The table shows the demand schedule for personal trainer services and the supply schedule of personal trainer services.

Price (Rupees per hour)	Hours Per Day	
	Quantity Demanded	Quantity Supplied
0	100	0
20	80	0
40	60	20
60	40	40
80	20	60
100	0	80

- a) Draw the demand and supply curves. [1 Mark]
- b) What is the market equilibrium? [2 Marks]
- c) Calculate the consumer surplus, producer surplus and total surplus at the equilibrium. [3 Marks]
- d) If all personal trainers agree to charge Rs. 80 an hour,
  - i. What is the amount of excess supply? [1 Mark]
  - ii. How do consumer surplus and producer surplus change? [2 Marks]
  - iii. What is the deadweight loss created? [1 Mark]

Q2. You are choosing between two goods, X and Y, and your marginal utility from each is as shown in the table below. If your income is Rs. 1000 and the prices of X and Y are Rs. 100 and Rs. 200, respectively.

Number of Units	MU <sub>X</sub>	MU <sub>Y</sub>
1	1000	2400
2	800	2000
3	700	1800
4	600	1600
5	500	1200
6	400	600
7	300	400

a) What quantities of each will you purchase to maximize utility?

[4 Marks]

b) Assume that, other things remaining unchanged, the price of Y falls to Rs.100. What quantities of X and Y will you now purchase?

[2 Marks]

c) Using the prices and quantities for Y, derive a demand schedule (price-quantity-demanded table) for Y.

[2 Marks]

d) Explain what is meant by the Diamond-Water Paradox.

[2 Marks]

Q3. Len's factory produces carrom boards and hires labors for producing the boards. The table sets out Len's total product schedule.

Labor (Workers per Day)	Total Product
0	0
1	20
2	44
3	60
4	72

a) Construct Len's marginal product and average product schedules. [3 Marks]

b) Len's carrom board factory pays Rs. 6,000 a day for equipment they hire and Rs. 200 a day to each worker it hires.

i. Construct Len's total variable cost, fixed cost, and total cost schedules. [3 Marks]

ii. Construct the average fixed cost, average variable cost, and average total cost schedules and the marginal cost schedule. [4 Marks]

Q4. Your firm has an opportunity to make an investment of Rs. 25,000. It's cost of capital is 12 percent. It expects after-tax cash flows (including the tax shield from depreciation) for the next 5 years to be as follows:

Year	Cash Flows (Rs.)
1	7,000
2	8,000
3	9,000
4	9,000
5	5,000

- a) Calculate the Net Present Value (NPV). [4 Marks]
- b) Calculate the Internal Rate of Return (IRR) (to the nearest percent). [4 Marks]
- c) Would you accept this project? Explain your answer. [2 Marks]

Q5. For a hypothetical economy following functions are given:

Consumption function	$C = 400 + 0.6 Y$
Planned Investment function	$I = 300$
Government purchases function	$G = 150$
Net export function	$NX = 50$

- a) What is the saving function of the economy? [2 Marks]
- b) Calculate the Equilibrium National Income [2 Marks]
- c) Determine the amount of savings at the Equilibrium National Income [2 Marks]
- d) Calculate the size of the Multiplier. [2 Marks]
- e) Suppose that the amount of investment doubled in the economy. Calculate the change in national income. [2 Marks]

Q6. Explain following concepts briefly.

- a) Comparative Advantage of International Trade
- b) Absolute Advantage of International Trade
- c) Natural Unemployment
- d) Cost Push Inflation
- e) Opportunity Cost

[2x5=10 Marks]