Actuarial Society of India

EXAMINATIONS

31st October 2006

Subject CT7 – Economics

Time allowed: Three Hours (02.30 – 05.30 pm)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1) ***Do not write your name anywhere on the answer sheet/s. You have only to write your Candidate's Number on each answer sheet/s.***

2) ***Mark allocations are shown in brackets.***

3) ***Attempt all questions, beginning your answer to each question on a separate sheet. However, answers to objective type questions could be written on the same sheet.***

4) ***For questions 1 to 26 which are multiple choice questions, there is only one alternative as the correct answer.***

5) ***Fasten your answer sheets together in numerical order of questions. This, you may complete immediately after expiry of the examination time.***

6) ***In addition to this paper you should have available graph paper, Actuarial Tables and an electronic calculator.***

Professional Conduct:

"It is brought to your notice that in accordance with provisions contained in the Professional Conduct Standards, If any candidate is found copying or involved in any other form of malpractice, during or in connection with the examination, Disciplinary action will be taken against the candidate which may include expulsion or suspension from the membership of ASI."

Candidates are advised that a reasonable standard of handwriting legibility is expected by the examiners and that candidates may be penalized if undue effort is required by the examiners to interpret scripts.

AT THE END OF THE EXAMINATION

Hand in both your answer scripts and this question paper to the supervisor.

Q.1) The Price Elasticity of demand for an inferior good

(A) must be Negative
(B) must be Positive
(C) is Zero
(D) could be any of the above **[1.5]**

Q.2) In the context of Life Insurance, which of the following is NOT true about adverse selection

(A) an individual is an above average risk
(B) an individual knows that she is a bad risk
(C) the life insurance company knows that the individual is a bad risk
(D) the life insurer makes loss if premiums are based on average rates **[1.5]**

Q.3) Cartels are described as

(A) A group of rival producers who don't cooperate with each other
(B) A group of producers who jointly collude to behave like a single monopolist
(C) One single large company in the market
(D) A large number of small producers with no influence on the market **[1.5]**

Q.4) Non Satiation means

I People prefer more wealth to less
II marginal utility of wealth is strictly positive
III $U'(w) > 0$

(A) I and III only
(B) III only
(C) I, II and III
(D) I only **[1.5]**

Q.5) The opportunity cost of holding money is

(A) the nominal interest rate minus the expected rate of inflation
(B) the nominal interest rate
(C) the real interest rate minus the expected rate of inflation
(D) the nominal interest rate plus the expected rate of inflation **[1.5]**

Q.6) Which of the following multipliers will have the greatest numerical value? Assume that taxes and imports are functions of level of income

(A) the closed economy multiplier, in the absence of taxes
(B) the closed economy multiplier, in the presence of taxes
(C) the open economy multiplier, in the absence of taxes
(D) the open economy multiplier, in the presence of taxes **[1.5]**

Q.7) An increase in the marginal propensity to import reduces the value of the investment multiplier in the simple Keynesian model for an open economy because

(A) investment in the domestic economy becomes less profitable
(B) increased use of imported materials adversely affects import substituting industries
(C) increased dependence on imports creates uncertainty in production and investment
(D) from every unit of additional income a smaller fraction is spent on domestic goods **[1.5]**

Q.8) If money demand is more sensitive to interest rate

(A) fiscal policy is more effective
(B) fiscal policy is less effective
(C) LM is steeper
(D) None of the above **[1.5]**

Q.9) Which of the following is NOT counted by economists as 'real investment'?

(A) buying shares in a new company
(B) stock building
(C) the creation of new capital goods
(D) buying new factories and machinery **[1.5]**

Q.10) If increased investment by the government results in the private sector being able to invest less, then this is an example of

(A) the Accelerator
(B) Crowding out
(C) Fiscal drag
(D) Sterilization **[1.5]**

Q.11) Marginal revenue for the perfectly competitive firm

(A) is equal to the change in total revenue per unit change in quantity sold
(B) equals price
(C) is constant
(D) all of the above **[1.5]**

Q.12) In a monopoly equilibrium

(I) average revenue is greater than the marginal cost
(II) average revenue is greater than the marginal revenue
(III) price is greater than the marginal revenue

(A) Only (I) holds
(B) Only (I) and (II) hold
(C) Only (II) and (III) hold
(D) All of (I), (II) and (III) hold **[1.5]**

Q.13) A monopolist does not produce in the inelastic portion of the demand function because he can raise profit by

(A) lowering output, when he is in such a zone.
(B) raising output, when he is in such a zone.
(C) changing output in either direction, when he is in such a zone.
(D) changing price in either direction, when he is in such a zone. **[1.5]**

Q.14) In national income accounting, if net indirect tax is zero then which of the following is necessarily true?

(A) GNP is greater than GDP
(B) GNP is less than GDP
(C) NNP and national income are equal
(D) D. NNP and NDP are equal **[1.5]**

Q.15) In a two commodity world the quantity of each commodity consumed can assume only integer values. The budget is found to be fully exhausted if the commodities are consumed in equal quantities. The prices of the two commodities are Rs.9 and Rs.4 respectively. Then which one of the following is true?

(A) The budget of the consumer is Rs. 360/-
(B) The budget of the consumer is Rs. 400/-
(C) The budget of the consumer is Rs. 390/-
(D) The budget of the consumer is Rs.270/- **[1.5]**

Q.16) If a change in equilibrium price and quantity happens to be a movement along the same demand curve then which of the following is not **necessarily** true

(A) Consumer surplus increases if the change happens to be a downward movement along the demand curve and the absolute value of price elasticity of demand is less than 1
(B) Consumer surplus increases if the change happens to be a downward movement along the demand curve and the absolute value of price elasticity of demand is equal to 1
(C) Consumer surplus declines if the change happens to be an upward movement along the demand curve and the absolute value of price elasticity of demand is equal to 1.
(D) Consumer surplus declines if the change happens to be an upward movement along the demand curve and the absolute value of price elasticity of demand is greater than 1 **[1.5]**

Q.17) Suppose that in the daily market for oranges in Kolkata there is excess demand for 100 oranges at the price of Re.1. If price rises by Re.1, demand for oranges falls by 20 and supply rises by 5, the price that will equilibrate the market for oranges is

A. Rs.3
B. Rs.6
C. Rs.21
D. Rs.5 **[1.5]**

Q.18) If both price and quantity in the market for a good rise, it implies that
A. demand at every price has gone up, but supply function is unchanged
B. supply at every price has gone up, but demand function is unchanged
C. at every price supply has gone up more than demand
D. supply has gone up more than demand only at the equilibrium price **[1.5]**

Q.19) Suppose that there are N number of firms in an industry characterized by Cournot oligopoly. The industry's inverse demand function is given by $P = 100 - 2Q$, where Q denotes industry output. While deciding on how much to produce, an individual firm thinks that if it raises its output by one unit, price of its product will fall by
A. 2
B. 2N
C. 2/N
D. 2(N-1) **[1.5]**

Q.20) Suppose that the marginal revenue and total cost of a firm are given respectively by $MR = 10$ and $C = 2Q$ where *MR*, *C* and *Q* denote marginal revenue, total cost and total output of the firm respectively. If it raises Q from 3 by 1 unit, its profit will rise by
A. 4
B. 8
C. 32
D. 2 **[1.5]**

Q.21) Consider the market for tea. Suppose that price of coffee rises, then
A. Demand schedule of tea will shift rightward raising the price of tea
B. price of tea will fall
C. Demand schedule of tea will shift leftward
D. producers of tea will supply more tea at every price **[1.5]**

Q.22) The greater the interest elasticity of aggregate demand for goods and services in the IS-LM model
A. the stronger is the impact of monetary policy on GDP
B. the weaker is the impact of monetary policy on GDP
C. the stronger is the impact of fiscal policy on GDP
D. the stronger is the impact of both monetary and fiscal policy on GDP **[1.5]**

Q.23) Suppose that the absolute value of the slope of the IS curve is 2. It means that
A. Following a rise in r (interest rate) by 1 unit from any point on the IS, Y (GDP) will fall by 2 units
B. Following a fall in r by 1 unit from any point on the IS, Y will rise by 2 units
C. Following a rise in Y by 1 unit from any point on the IS, r will have to fall by 2 units to keep the goods market in equilibrium
D. Following a rise in r by 1 unit from any point on the IS, Y will have to fall by 2 units to keep the goods market in equilibrium **[1.5]**

Q.24) Suppose that aggregate demand for goods and services in an economy is given by $[100 + 0.8Y - 200r]$. Then at

A. (Y=110, r = 0.4) there is excess demand in the goods market
B. (Y=110, r = 0.4) there is excess supply in the goods market
C. (Y=90, r = 0.4) there is excess supply in the goods market
D. (Y=100, r =0.5) there is excess demand in the goods market **[1.5]**

Q.25) Suppose that the aggregate demand for goods and services is given by $[100 + .8Y]$

A. The IS is horizontal in this case
B. The IS is vertical in this case
C. The slope of the IS is ambiguous in this case
D. The information is not relevant for the IS curve **[1.5]**

Q.26) The higher the marginal propensity to consume, the greater is the value of the multiplier in the simple Keynesian model because

A. the larger is the fall in the excess demand per unit rise in Y
B. the smaller the fall in excess demand per unit rise in Y
C. the larger is the fall in demand per unit rise in Y
D. the larger is the consumption demand corresponding to every Y **[1.5]**

Q.27) Explain what is meant by the socially optimal level of output within the context of a monopoly. **[6]**

Q.28) Discuss briefly the effectiveness of reducing the value of currency by Government to correct a balance of payments deficit. **[4]**

Q.29) Consider the simple Keynesian model where the exogenously given aggregate planned investment is $\bar{I}$. (i) What happens to aggregate planned saving in equilibrium if planned investment $\bar{I}$ goes up by *Q*? (ii) What happens to aggregate planned investment in equilibrium if aggregate planned saving goes up at every level of output (y) ? (iii) On the basis of your answers to (i) and (ii) which of the following statements do you think to be true: In the simple Keynesian model (a) investment determines saving (b) saving determines investment. **[5]**

Q.30) Suppose that in a two commodity world the utility function is linearly homogeneous. If the prices of the commodities double then show that the consumption of the commodities is halved **[6]**

Q.31) A firm's production function is given by $Y = F(X_1, X_2)$; $\frac{\partial F}{\partial X_i} > 0, i = 1,2$. Suppose that X_1 and X_2 are plotted on the horizontal and vertical axes respectively. Suppose that the slope of the isoquant at $(\bar{X}_1, \bar{X}_2)$, which produces $\bar{Y}$ amount of *Y*, is–(1/2). Prices of X_1 and X_2 are Rs.5 and Rs.2.5 respectively. If the firm decides to produce the same level of output using 1 more unit of X_1 and a commensurately smaller amount of X_2

so that it remains on the same isoquant, what will happen to its cost of production? **[5]**

Q.32) Suppose that the slope of the short-run Phillips curve is -(1/2) in the (unemployment-inflation). Draw this Phillips curve in a graph and explain the meaning of the slope. If the government wants to reduce inflation by 5 units, how much additional unemployment will the economy have to bear? What is the slope of the long run Phillips curve? What does it imply? **[7]**

Q.33) In a simple Keynesian model, at y = 1500 , there is excess supply of 300 units in the commodity market. Aggregate planned investment is exogenously given. It is 250 units. What is the actual investment at this level of output? Explain. Are the actual and planned levels of saving different at this given level of output? Explain. By how much will the levels of actual and planned investments change respectively, when output changes to its equilibrium level? **[7]**

Q.34) Suppose that in the IS-LM model the money market is found to be in equilibrium at $y = 1500, r = 4(\%)$ and at $y = 2000, r = 5(\%)$ in two different situations .Derive the LM curve assuming it to be linear. What is the slope of the LM curve? **[4]**

Q.35) Between 5 and 6 in one Sunday evening Shyam has two options to choose from. He can do a part time job and earn Rs. 200 as remuneration. Alternatively he can take part in a lucky draw where entry fee costs him Rs. 25. If he wins he gets cash reward of Rs. 900, if he looses he gets nothing. The chance of his winning the game is 1/4 . His utility function is given by $U = \log W,$ where W stands for the cash return to Shyam. Which option will he choose? **[4]**

Q.36) A price discriminating monopolist produces 70 units of output which he sells in equal quantities in two seggregated markets 1 and 2 respectively. The demand curves faced by the monopolist in the two markets are given by , $p_1(q_1) = 100 - q_1$ and $p_2(q_2) = 50 - \frac{q_2}{2}$ respectively. The total cost function of the monopolist is given by $C = 800 + 20q,$ where $q = (q_1 + q_2) \le 70$.

(a) Compute the profit of the monopolist if he sells equal quantities (35 units) in each market. **(3)**

(b) What will happen to the profit of the monopolist if he sells one unit less in market 2 and one unit more in market 1? **(3)**

(c) How much more profit the monopolist can earn at the maximum level by reallocating the output of 70 units in the two markets? **(4)**

(d) Comment upon the relationship between the price charged by the monopolist in the two markets and the price elasticity of demand in the two markets at the profit maximization level of output. What general conclusion can you draw from this? **(3)**

[13]

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