

# INSTITUTE OF ACTUARIES OF INDIA

## EXAMINATIONS

16<sup>th</sup> May 2011

Subject CT7 – Business Economics

Time allowed: Three Hours (10.00 to 13.00 Hrs)

Total Marks: 100

### *INSTRUCTIONS TO THE CANDIDATES*

- 1) *Please read the instructions on the front page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception*
- 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) *In addition to this paper you will be provided with graph paper, if required.*

AT THE END OF THE EXAMINATION

Please return your answer book and this question paper to the supervisor separately.

- Q. 1)** Which of the following combination of statements are TRUE in a free economy:
- A. Merit Goods shall be underprovided and Demerit Goods shall be overprovided
  - B. Merit Goods shall be overprovided and Demerit Goods shall be underprovided
  - C. Demerit Goods shall be underprovided
  - D. Merit Goods shall be underprovided
- [1.5]**
- Q. 2)** Phillips Curve shows
- A. The inverse relationship between wage inflation and unemployment
  - B. The inverse relationship between price inflation and unemployment
  - C. The inverse relationship between wage inflation and unemployment and the positive relationship between output and prices
  - D. The inverse relationship between wage inflation and unemployment or the inverse relationship between price inflation and unemployment
- [1.5]**
- Q. 3)** Which of the following would NOT be classed as a supply-side policy?
- A. Cutting marginal rates of tax to promote the development of a particular business
  - B. Increasing vocational/occupational training to help destitute women to gain work
  - C. cutting short-term interest rates
  - D. Government building lots of roads and bridges
- [1.5]**
- Q. 4)** Country A has Comparative Advantage over Country B in the production of Rubber. It means that:
- A. Country A uses lesser labour hours than Country B in producing Rubber
  - B. Country A uses lesser Capital than Country B in producing Rubber
  - C. The total cost of producing Rubber is lesser for Country A
  - D. The opportunity cost of producing Rubber is less for country A than it is for Country B
- [1.5]**

- Q. 5)** A Higher Maturity Gap
- A. Increases Liquidity
  - B. Increases Liquidity and Reduces Profitability
  - C. Reduces Liquidity and Increases Profitability
  - D. Reduces Profitability
- [1.5]**
- Q. 6)** Which of the following is NOT a problem arising due to trade restrictions
- A. Government Surplus increases due to import tariff
  - B. Consumer Surplus decreases due to import tariff
  - C. Retaliation problems by the other country
  - D. Industry inefficiency is encouraged
- [1.5]**
- Q. 7)** If the exchange rate has moved from ₹ 45/\$ to ₹ 48/\$ - the possible causes of this may be
- A. Indian interest rates have dropped compared to USA
  - B. Indian interest rates have dropped compared to USA and/or higher inflation in India compared to USA
  - C. Higher inflation in USA compared to India
  - D. Indian interest rates have dropped compared to USA and/or higher inflation in USA compared to India
- [1.5]**
- Q. 8)** Which of the following policies will NOT counteract the downward pressure on the exchange rate in the long term, under a fixed exchange rate regime:
- A. Raising Interest Rates
  - B. Raising Taxes
  - C. Reducing Government Expenditure
  - D. Selling gold and foreign currency reserves
- [1.5]**

- Q. 9)** Which of the following will NOT result in an increase in the demand for money :
- A. Increase in the prices of goods and services
  - B. Reduction of interest rate by the central bank
  - C. The equity share market crashing
  - D. Abolition of the use of plastic money
- [1.5]**
- Q. 10)** If the economy should have static price levels then according to monetarists:
- A. Money Supply should grow at the same rate as Real GDP
  - B. Government should ensure a stable exchange rate regime
  - C. The Money Supply should grow at the same rate as the Velocity of circulation
  - D. Money Supply should grow at the same rate as Nominal GDP
- [1.5]**
- Q. 11)** If the marginal capital-output ratio is 4, the ratio of Injections to Aggregate Demand is 30% and investment constitutes 60% of all injections, what is the growth rate in the economy? Assume that the economy is in equilibrium.
- A. 15%
  - B. 4.5%
  - C. 7.5%
  - D. 22.5%
- [1.5]**
- Q. 12)** In a closed economy, what would the value of the multiplier be if the marginal propensity to save is 0.25. Assume taxes are 20% and applied flatly as a proportion of income
- A. 4
  - B. 2.22
  - C. 5
  - D. 1.81
- [1.5]**

**Q. 13)** At Equilibrium, in the Keynesian model :

- A. AD equals AS, Economy is operating at zero unemployment and Economy has zero inflation
- B. AD equals AS, Economy is operating at non-zero equilibrium unemployment and Economy has zero inflation
- C. AD equals AS and Economy is operating at non-zero equilibrium unemployment
- D. AD equals AS and Economy has zero inflation

[1.5]

**Q. 14)** Hysterisis means all the following EXCEPT

- A. Firms raise prices instead of expanding output
- B. Phillips Curve Shifts to the left and NAIRU decreases
- C. Workers lose their skills
- D. Unemployment fails to recover from a recession although demand is no more deficient

[1.5]

**Q. 15)** Rational Expectations Theory DOES NOT imply that

- A. Output and Employment remains unchanged at the equilibrium level
- B. Increase in Nominal Aggregate demand is offset by increase in prices and wages
- C. A very flexible labour market that responds quickly to changes
- D. Short Run Phillips Curve is horizontal

[1.5]

**Q. 16)** Select an option to fill the blanks in the following statement:

If marginal cost exceeds marginal benefit, then increasing the level of activity by one unit increases ----- benefit by less than it increases ----- cost. Therefore, ----- the level of activity by one unit must increase net benefit.

- A. Total, total, decreasing
- B. Marginal, marginal, increasing
- C. Total, marginal, increasing
- D. Marginal, net, increasing

[1.5]

- Q. 17)** Which of the following would decrease the supply of wheat?
- A. A decrease in the price of pesticides (a complement to wheat production)
  - B. An increase in the demand for wheat
  - C. A rise in the price of wheat
  - D. An increase in the price of corn (a substitute for wheat production)
- [1.5]**
- Q. 18)** Increased expenditure on successful advertizing may lead to increase in cost and hence price (which is disadvantageous to the society as a whole) if
- A. Economies of scale and diseconomies of scale are equal
  - B. Economies of scale are larger than diseconomies of scale
  - C. Economies of scale are smaller than diseconomies of scale
  - D. Both economies of scale and diseconomies of scale are zero
- [1.5]**
- Q. 19)** Entry fee for a gamble is Rs. 100. The player will either win Rs. 1000 or loose totally. The probability of winning the gamble is 0.1. Mr. X rejects this gamble. Thus, Mr. X is a
- A. Risk-neutral person
  - B. Risk-loving person
  - C. Risk-averse person
  - D. No risk is involved in the gamble
- [1.5]**
- Q. 20)** Average physical product (APP) rises as long as
- A. the marginal physical product (MPP) is less than APP
  - B. the MPP is greater than APP
  - C. the MPP equals APP
  - D. the total physical product is rising
- [1.5]**

**Q. 21)** A firm is operating in the short-run. Its average cost is Rs. 500 and average variable cost is Rs. 400. The product is being sold at Rs. 450 per unit. Which of the following is shut-down unit price for this firm?

- A. Rs. 450
- B. Rs. 400
- C. Rs. 399
- D. Rs. 50

[1.5]

**Q. 22)** Monthly growth rate of an economy declines from 5% in the January to 4.5% in February and to 4.4% in March. However, growth rate reaches 4.6%, 4.6% and 4.8% in the month of April, May and June of the same year. This situation is characterized by:

- A. Recession
- B. Expansion
- C. Recession followed by expansion
- D. None of the above

[1.5]

**Q. 23)** For a perfectly competitive firm in short-run equilibrium, marginal cost is \$8, average variable cost is \$6, and average total cost is \$7. Profit is getting maximized at current output and price and the firm is earning total supernormal profit of \$100. How many units of output are being produced?

- A. 50
- B. 100
- C. 200
- D. Cannot be calculated from given information

[1.5]

**Q. 24)** In the short-run, distance between linear AR and MR curves is likely to be maximum under:

- A. Monopoly
- B. Monopolistic competition
- C. Perfect competition
- D. When firms are price takers

[1.5]

- Q. 25)** Size of discontinuous section of MR curve in Kinked Demand Curve Theory primarily depends on:
- A. Level of equilibrium quantity
  - B. Level of equilibrium price
  - C. Level of both equilibrium quantity and equilibrium price
  - D. Difference between slope of upper and lower portion of kinked demand curve
- [1.5]**
- Q. 26)** Busch Gardens recently announced that it will increase the entrance fees at its theme parks in order to increase park revenues. Busch Gardens must believe that...
- A. the demand for theme park attractions is elastic
  - B. theme park goers are very responsive to price changes
  - C. demand is unitary elastic, and thus the number of visitors will NOT decrease
  - D. the percentage increase in fees will be greater than the percentage decrease in the number of theme park visitors
- [1.5]**
- Q. 27)** The only fruit-seller in a locality sells apples at different rates to the customers; and for each customer, rates further vary depending on the quantity purchased. This is an example of:
- A. First Degree Price Discrimination
  - B. Second Degree Price Discrimination
  - C. A mix of First & Second Degree Price Discrimination
  - D. Third Degree Price Discrimination
- [1.5]**
- Q. 28)** Which of the following does not make a firm susceptible to takeover?
- A. Reduction in current dividends leading to decline in share prices
  - B. A lack of new investment and growth (coupled with high dividend payouts)
  - C. Low valuation ratio
  - D. High valuation ratio
- [1.5]**



- Q. 29)** Which of the following does not constitute a part of internal expansion growth strategy?
- A. Expanding sales of the same product in the same market or in new markets or by product differentiation
  - B. Setting up operations at a different stage of the production process in the same market
  - C. Taking over another firm to form a single new firm
  - D. Expanding operations into completely new markets outside of its current product range
- [1.5]**
- Q. 30)** Antec Enterprises depends heavily on advertising to sell its products. Management at Antec is allowed to spend \$2 million monthly on advertising, but no more than this amount. Each month, Antec spends exactly \$2 million on advertising. What is Antec's elasticity of demand for advertising?
- A. 0
  - B. Infinity
  - C. -1
  - D. Cannot be estimated
- [1.5]**
- Q. 31)** Can the following be classified as Merit Goods?
- a) Private provision of Long term care for the Elderly (2)
  - b) Education for underprivileged children (2)
- [4]**
- Q. 32)** Explain each of the following :
- a) The problems with government intervention in markets? Why would a free market be still be preferable although it has its own faults? (4.5)
  - b) The substitution effect and income effect due to a cut in taxes on income, savings and profits. (2)
  - c) How devaluation causes inflation (1.5)
  - d) Explain how a High domestic demand can be associated with an appreciating currency? (2)
- [10]**

**Q. 33)** Explain briefly the reasons when international trade may occur even though there is no comparative advantage?

[6]

**Q. 34)** The following figures have been extracted from the Balance of Payments:

S.No	Item	₹ in Millions
1.	Total Export of Cars	1000
2.	Import of Steel	400
3.	Accounts receivable (of the above given Sales)	300
4.	Training/Workshops attended abroad by Car engineers abroad	5
5.	Loan taken by Companies in the Domestic Country from foreign banks	100
6.	Repayment of Loan above	15
7.	Purchase of Shares in Car Companies by Foreign Institutions in this Country	100
8.	Insurance Payments made to a global reinsurer in Zurich	10
9.	Car Expo in domestic country- spending by foreign nationals visiting the country	7
10.	Establishment of an Auto Subsidiary in a foreign country	200
11.	Monies Paid to foreign design consultant	2
12.	Interest Paid on loans	15
13.	Dividends from foreign subsidiaries	20
14.	Net errors and omissions	-2

Compute:

- a) Balance of visible trade (1)
- b) Services Balance (1)
- c) Income Flows (1)
- d) Balance of Trade (0.5)

- e) Current Account Balance (0.5)
- f) Financial Account (investment and other financial flows only) (1)
- g) Financial Account Balance (1)
- h) Change in Official Reserves (1)
- [7]

**Q. 35)** Century Enterprises has discovered a theft problem at its warehouse and has decided to hire security guards. The firm wants to hire the optimal number of security guards. The following table shows how the number of security guards affects the number of radios stolen per week.

Number of security guards	Number of radios stolen per week
0	50
1	30
2	20
3	14
4	8
5	6

If each security guard is paid \$200 a week and the cost of a stolen radio is \$25, how many security guards should the firm hire? If the cost of a stolen radio is \$25, what is the most the firm would be willing to pay to hire the first security guard?

[3]

**Q. 36)** Comlin Corporation is a publisher of romance novels. The corporation hires an economist to determine the demand for its product. The economist tells the company that the demand for the firm's novels ( $Q_x$ ) is given by the following equation:

$$Q_x = 12,000 - 5,000P_x + 5I + 500P_c$$

Where  $P_x$  is the price charged for the Comlin novels,  $I$  is income per capita, and  $P_c$  is the price of books from competing publishers.

Use above information to:

- I. Determine what effect a price increase would have on total revenue. (3)
- II. Evaluate how sale of the novels would change during a period of rising incomes. (3)
- III. Assess the probable impact if competing publishers raise their prices (3)

Assume that the initial values of  $I$ ,  $P_x$  and  $P_c$  are ₹10,000, ₹5 and ₹6, respectively. [9]

**Q. 37)** Fill in the blanks in the following table:

Output	Total cost	Total fixed cost (irrespective of level of output)	Total variable cost	Average fixed cost	Average variable cost	Average total cost	Marginal cost
100	260		60				
200							0.30
300					0.50		
400						1.05	
500			360				
600							3.00
700					1.60		
800	2,040						

[4]

**Q. 38)** A consultant estimates that the demand for the output of Morocco Chemicals is represented by the equation

$$Q = 2,000 - 50P$$

If the managers decide to maximize total revenue instead of profit, at what output rate should the firm operate? What is the revenue-maximizing price?

[4]

**Q. 39)** A firm has found a way of using first-degree price discrimination. Demand for its product is given by

$$P = 20 - 2Q$$

Marginal cost is constant and equal to \$6.

I. With first-degree price discrimination, what will be the profit-maximizing rate of output? How much economic profit will the firm earn? (2)

II. What will be the profit-maximizing rate of output if the firm does not discriminate and sets one price for all customers? How much economic profit will the firm earn in this case? (2)

[4]

**Q. 40)** Define the economies and diseconomies of scale. What are possible causes of economies and diseconomies of scale?

[4]

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