INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

15th November 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.*

5. *Please check if you have received complete Question Paper and no page is missing. If so kindly get new set of Question Paper from the Invigilator*

AT THE END OF THE EXAMINATION

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

Q. 1) Assume that the government imposes minimum wages regulations and bans child labour. This would lead to :

    a) Demand-pull inflation
    b) Cost-push inflation
    c) Both
    d) Neither   (1.5)

Q. 2) Eurozone countries have a common monetary policy set by the European Central Bank (ECB).If one of the countries in the Eurozone has to fight against inflation independently, they can :

    a) Decrease interest rates
    b) Increase interest rates
    c) Raise taxes – reduce disposable income
    d) Sell bonds – open market operations   (1.5)

Q. 3) Assume one of the Eurozone members wants to increase its export competitiveness

    a) It would directly devalue its currency
    b) It would decrease interest rates
    c) It would improve labour productivity and give tax incentives for exports
    d) All of the above   (1.5)

Q. 4) Assume Mexico's money supply has been reduced by its government. Normally, this may lead to

    a) Interest rates to rise
    b) Interest rates to fall and Mexico's currency depreciating
    c) Interest rates to rise and Mexico's currency appreciating
    d) Interest rates to rise and Mexico's currency depreciating   (1.5)

Q. 5) When a country has a comparative advantage in the production of a good we mean that the country:

    a) Can produce the good in fewer man hours than other countries.
    b) Has a lower opportunity cost in the production of the good than other countries.
    c) Can produce a better quality good than other countries.
    d) Uses more sophisticated technology to produce the good than other countries.   (1.5)

Q. 6) Which of the following would NOT appear in the balance of trade?

    a) Exports of cars from the domestic country
    b) Spending by the country's residents abroad during holiday travel
    c) Insurance premiums paid to domestic insurance companies by foreign shipping vessel companies
    d) Purchase of shares of domestic companies by foreign investors   (1.5)

Q. 7)   In the circular flow model of an economy:

   a) Consumer expenditure is equal to disposable income.
   b) Investment + Government Expenditure + Imports = Savings + Taxation + Exports.
   c) The economy is assumed to operate at full employment.
   d) Households receive income from producers and supply factors of production   (1.5)

Q. 8)   To obtain a measure of gross domestic product at market prices from gross value added at basic prices, it is necessary to:

   a) Deduct any transfer payments made by the government to households.
   b) Add any indirect taxes and deduct subsidies on products.
   c) Deduct any indirect taxes and add subsidies on products.
   d) Add net income from abroad.   (1.5)

Q. 9)   The marginal propensity to consume domestically produced goods is 0.8 and the government decides to increase public spending by Rs.100 million. According to Keynesian analysis, what is likely to be the total change in national income resulting from this increased government expenditure?

   a) Rs. 80 million
   b) Rs. 125 million
   c) Rs. 400 million
   d) Rs. 500 million   (1.5)

Q. 10) A rise in unemployment caused by a fall in the demand for the products of some industries (even though there is a rise in demand for the products of other industries) is known as:

   a) Frictional unemployment.
   b) Structural unemployment.
   c) Technological unemployment.
   d) Demand-deficient unemployment.   (1.5)

Q. 11) Which of the following options is correct in relation to the statement that "When money supply increases it leads to a fall in interest rates":

   a) This is always true
   b) This depends upon the elasticity of demand for money
   c) Change in interest rates is driven by future expectations
   d) Both b and c   (1.5)

Q. 12) When national income is less than full-employment national income, by how much must aggregate demand be increased to achieve full employment?

    a) The amount by which the equilibrium level of national income falls short of the full-employment level
    b) The amount by which injections exceed withdrawals at the full-employment level of output
    c) The amount by which national income exceeds aggregate demand at the full employment level of national income
    d) The size of the balance of payments deficit at the full-employment level of National Income   (1.5)

Q. 13) The opportunity cost of holding money is the:

    a) Real rate of interest.
    b) Inflation rate.
    c) Expected inflation rate.
    d) Nominal rate of interest.   (1.5)

Q. 14) A rise in the domestic interest rates will NOT lead to:

    a) A reduction in growth in the economy due to lesser spending because of higher borrowing cost
    b) Large inflows of foreign money
    c) More competitive exports due to appreciation of the domestic currency
    d) Lower inflation   (1.5)

Q. 15) Consider an economy where the demand for real money balances is interest-elastic and the demand for investment is interest-inelastic. A change in the money supply will result in a relatively:

    a) small change in the rate of interest and the level of investment.
    b) large change in the rate of interest and the level of investment.
    c) small change in the rate of interest and a relatively large change in the level of investment.
    d) large change in the rate of interest and a relatively small change in the level of investment.   (1.5)

Q. 16 The marginal utility per Rs 1 spent on B is less than the marginal utility per Rs 1 spent on A. To increase total utility consumer should buy:

    a) less A
    b) less B
    c) more of both
    d) less of both   (1.5)

Q. 17) A monopoly firm with a constant marginal cost curve will price its output in the region of the demand curve where the price elasticity of demand:

    a) is elastic
    b) has unit elasticity
    c) is inelastic
    d) has zero elasticity   (1.5)

Q. 18) The table below gives the demand and supply schedules for boat rides.

Price (Rs per ride)	Qty demanded (rides per day)	Qty supplied (rides per day)
2	100	40
4	90	50
6	80	60
8	70	70
10	60	80
12	50	90

If the demand for boat rides increases by 20 rides a day, the price will

    a) rise to Rs 6 a ride.
    b) fall to Rs 6 a ride.
    c) remains unchanged.
    d) rise to Rs 10 a ride.   (1.5)

Q. 19) Fill in the gaps in the following statement by selecting an appropriate option .Apple juice and orange juice are substitutes in consumption and apple juice and apple sauce are substitutes in production. If the price of orange juice _____ or the price of apple sauce _____, then the price of apple juice will _____.

    a) increases; increases; increase
    b) decreases; decreases; increase
    c) decreases; increases; decrease
    d) increases; decreases; increase   (1.5)

Q. 20) If both commodities in an indifference curve diagram are bads, instead of goods, utility will increase in

    a) a northeasterly direction
    b) a northwesterly direction
    c) a southwesterly direction
    d) a southeasterly direction   (1.5)

Q. 21) The table shows Scarlett's utility of wealth schedule.

Wealth (thousands Rupees)	Total Utility (Units)
5	40
10	70
15	90
20	100
25	105

Scarlett is risk averse. Scarlett can take a teaching job that guarantees to pay her so that her yearend wealth is Rs 20,000. Scarlett has also been offered a sales job that will pay her a commission. She has an 80 percent probability that her yearend wealth will be Rs 25,000 and a 20 percent probability that it will be Rs 15,000.

Fill in the gaps in the following statement by selecting an appropriate option.

Scarlett's expected utility from the sales job is _____. Scarlett will _____.

    a) 102 units; accept the sales job
    b) Rs 23,000; not accept the sales job because she is risk averse
    c) 102 units; not accept the sales job because she is risk averse
    d) 100 units; accept the sales job   (1.5)

Q. 22) A firm engaged in monopolistic competition has an advertising budget. Currently the marginal revenue product of advertising is Rs 10,000, and the marginal cost of advertising is Rs 7,500. You predict that the firm will _____

    a) Increase advertisement
    b) Decrease advertisement
    c) Advertisement remains unchanged
    d) Insufficient information   (1.5)

Q. 23) A monopolistic competitive market is :

    a) efficient when all firms are making zero economic profit
    b) efficient when all firms make zero normal profit
    c) is inefficient because firms always make zero economic profit
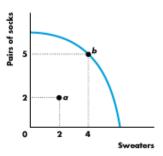   d) inefficient because in the long run, price exceeds marginal cost   (1.5)

Q. 24) Kim's restaurant can produce chimichangas and seekh kebabs. The table gives Kim's production possibilities.

Chimichangas (number per hour)	Seekh kebabs (number per hour)
30	0
20	20
10	40
0	60

Fill in the gaps in the following statement by selecting an appropriate option.

The opportunity cost of _____.

    a) 1 seekh kebab is 10 chimichangas
    b) the 20th chimichanga is 1 seekh kebab.
    c) the first 10 chimichangas is 20 seekh kebabs
    d) the 40th seekh kebab is 10 chimichangas   (1.5)

Q. 25) The opportunity cost of moving from point a to point b in the figure

    a) is zero.
    b) 3/2 pairs of socks per sweater.
    c) 3 pairs of socks.
    d) 2 sweaters   (1.5)

Q. 26) Fill in the gaps in the following statement by selecting an appropriate option.

Jacqueline consumes normal goods. If Jacqueline's income increases and the prices of all goods remain unchanged, her marginal utility from each good will _____ and her total utility will _____.

    a) increase; increase
    b) increase; decrease
    c) decrease; increase
    d) decrease; decrease   (1.5)

Q. 27) Fill in the gaps in the following statement by selecting an appropriate option.

A natural monopoly that charges the profit-maximizing price will produce _____ output than a _____.

    a) the same; natural monopoly regulated by a marginal cost pricing rule
    b) a larger; natural monopoly regulated by a marginal cost pricing rule
    c) a smaller; natural monopoly regulated by a marginal cost pricing rule
    d) a more efficient; perfectly competitive industry   (1.5)

Q. 28) Fill in the gaps in the following statement by selecting an appropriate option .

The apple industry is perfectly competitive and is in long-run equilibrium. Now a disease kills 50 percent of the apple orchards. In the short run, the price of a bag of apples _____ and the remaining apple growers make _____ profits. In the long run, the _____.

    a) remains the same; normal; orchards will be replanted and growers will make normal profits
    b) increases; normal; orchards will be replanted and economic profit will return to zero
    c) increases; positive economic; orchards will be replanted and economic profit will return to zero
    d) increases; normal; price of apples will return to their original level   (1.5)

Q. 29) The Prisoners' Dilemma is not a constant sum game because

    a) some outcomes are better than others for both players.
    b) the prisoners' sentences are necessarily non-zero.
    c) the game does not have a Nash equilibrium.
    d) the sum of the prisoners' sentences in non-zero.   (1.5)

Q. 30) In the short run, an employee would receive his salary each month whether or not he has actually discharged his responsibilities to the level expected by his employer. In Economics, problems of this nature are referred as:

    a) Adverse selection
    b) Moral hazard
    c) Uncertainty
    d) Risk aversion   (1.5)

Q. 31) In each of the following cases, state whether the money supply will increase, decrease or be unaffected:

    i. an increase in the public sector deficit financed by borrowing from the non-bank private sector   (1)

    ii. a decrease in the non-bank private sector's holdings of cash   (1)

    iii. an increase in the commercial banks' liquidity ratios   (1)

    iv. the sale of foreign currency by the central bank.   (1)

                                                        [4]

Q. 32) In the context of Unemployment levels:

    a) Distinguish between NAIRU and the "Natural Rate of Unemployment". What are the implications of reducing unemployment below these implied levels? (6)

    b) Are there any solutions to tackle those implications and yet reduce unemployment? (1)

    [7]

Q. 33) Define securitisation and discuss its effects on the banking system. **[6]**

Q. 34) You are the visiting professor of Economics at Delhi School of Economics. One of your student queries – "why can't we simply print more currency to solve the budget deficit problems"? What would your answer be (Explain your reasons)? **[6]**

Q. 35) You are the Chief economist advising country A. Neighboring country B want to enter into an arrangement whereby both the countries have a common currency and common monetary policy in order to boost international trade and align trade relations. This would mean the setting up of a common Central bank that guides the national central banks. Your country would lose the ability to have an independent/autonomous monetary policy.

Country B have budget deficits in the range of 20% (they spend 120% of the revenues they earn through taxes etc.)

What would your concerns be regarding this arrangement? **[5]**

Q. 36) The inverse demand function for bananas is $PD = 18 - 3QD$ and the inverse supply function is $PS = 6 + QS$, where prices are measured in Rupees.

    i. If there are no taxes or subsidies, what is the equilibrium quantity? What is the equilibrium price? (1)

    ii. What is the consumer surplus and producer surplus corresponding to the above? Depict graphically. (2)

    iii. If a subsidy of Rs 2 per banana is paid to banana growers then the price received by growers is Rs 2 higher than the price paid by consumers. What is the new equilibrium quantity? What is the equilibrium price received by the growers? What is the equilibrium price paid by the consumers? (2)

    iv. Define deadweight loss? Is there a deadweight loss to the society after the subsidy? Why? If yes, what is the deadweight loss due to the above subsidy? (4)

    v. What do you understand by price elasticity of demand? Express the change in price (paid by demanders) due to subsidy as a percentage of the original price. If the cross elasticity of demand between bananas and apples is +.5, what will happen to the quantity of apples demanded as a consequence of banana subsidy, if the price of apples stays constant? (State your answer in term of percentage change) (3)

    [12]

Q. 37) Suppose a fishery is located next to a chemical factory making polybags and each acts as an independent firms operating in perfectly competitive market. Let the amount of Fish produced by the fishery be F and the amount of polybags made the factory be P. The cost functions of the 2 firms are $C_F(F) = F^2/100 + P$ and $C_P(P) = P^2/100$, respectively. The price of fish is Rs 4 and the price of polybags is Rs 6.

    a) If the firms operate independently, what will be the equilibrium amount of fish and polybags produced?   (2)

    b) What is the socially efficient output of fish and polybags? How much would polybags production have to be taxed to induce an efficient supply?   (3)

                                                           [5]

Q. 38) For a toy manufacturing firm consider the following cost function,

$C(y) = y^2 + y + 16$, where y is the number of toys produced by the firm. The demand curve is given by: $Y = 41 - P$, where Y is the aggregate output of the toy industry and Price P is in rupees.

    (i)   What is the firm supply curve (short run)?   (1)

    (ii)   What is the industry supply curve, when number of firms in the industry is 6?   (1)

    (iii)   Given the demand curve, find the equilibrium industry price and quantity in the short run. What is the profit of each firm? What is the profit of the industry?   (2)

    (iv)   Suppose, a per unit tax is imposed on the output at Rs 4 per unit. What will happen to industry output and market price in the short run?   (2)

                                                           [6]

Q. 39) Sukie owns a small chocolate factory, located close to a river that occasionally floods in the spring, with disastrous consequences. Next summer, Sukie plans to sell the factory and retire. The only income she will have is the proceeds of the sale of her factory. If there is no flood, the factory will be worth Rs 500,000. If there is a flood, then what is left of the factory will be worth only Rs 50,000. Sukie can buy flood insurance at a cost of Rs 0.10 for each Rs 1 worth of coverage. Sukie thinks that the probability that there will be a flood this spring is 1/10. Sukie's von Neumann-Morgenstern utility function is $\sqrt{c}$, where c is the amount of wealth.

    (i)   Calculate her expected utility if she doesn't buy flood insurance.   (1)

    (ii)   Calculate the certainty equivalent of the lottery she faces if she doesn't buy flood insurance.   (1)

    (iii)   To buy insurance that pays her Rs x in case of a flood, Sukie must pay an insurance premium of $0.1x$ (The insurance premium must be paid whether or not there is a flood.). If Sukie insures for Rs x, then if there is a flood, she gets Rs x in insurance benefits. Suppose that Sukie has contracted for insurance that pays her Rs x in the event of a flood. How much insurance will she buy?   (2)

                                                           [4]

****