

Actuarial Society of India

Examinations

November 2006

CT7-Economics

Indicative Solution

1. (D)
2. (C)
3. (B)
4. (C)
5. (B)
6. (A)
7. (D)
8. (A)
9. (A)
10. (B)
11. (D)
12. (D)
13. (A)
14. (C)
15. (C)
16. (D)
17. (D)
18. (A)
19. (A)
20. (B)
21. (A)
22. (A)
23. (C)
24. (B)
25. (B)
26. (B)

27.

Socially optimal level of output is the level of output that maximizes social welfare

Characterized by the condition that marginal cost is equal to price/average revenue

This is because we can interpret the demand curve – which shows consumer’s valuation of each extra unit of output – as showing the marginal benefit to society of each extra unit consumed

At the same time, the marginal cost curve shows the marginal cost to society of producing each additional unit of output

Hence so long as the demand curve is above the marginal cost curve, social welfare can be increased by setting output at a higher level

The socially optimal output level thus arises where the marginal cost curve cuts the demand curve

This level of output is usually higher than the profit maximizing position for the monopolist

Unless the monopolist is required to produce at the level where price is equal to marginal cost

Or the monopolist engages in perfect price discrimination

[Max 6 marks]

28. In the short term this may be counter productive because of the “J” curve effect
 In the medium term a lower level of currency will increase net exports so long as the Marshall-Lerner condition holds.
 In the long run domestic prices may rise, offsetting the competitive advantage of the depreciation.
 This offsetting effect may be slower to occur if the economy starts from a position of unemployment. [4]

29. An exogenous increase in I by Δ raises equilibrium S by Δ ,

Where as an increase in S at every level of Y leaves equilibrium S unchanged.
 Hence investment determines saving. [5]

30. As long as price ratio is constant, so is the ratio in which the two commodities are consumed.
 Doubling of both prices doubles the value of the initial consumption bundle.
 To keep expenditure constant consumption of both has to be halved, if the ratio in which they are consumed is to be kept unchanged. [6]

31. If it uses 1 more unit of X_1 , it will be able to reduce use of X_2 by $\frac{1}{2}$ to keep the output unchanged.
 Clearly its expenditure on X_1 will go up by Rs.5/- while that on X_2 will decline by Rs.1/2 of Rs.2.5 =Rs.1.25.
 Clearly, therefore it cost will go up by $Rs.5.00 - Rs.1.25 = Rs.3.75$. [4]

32. The Philips curve in the (unemployment-inflation) plane is linear and downward sloping with slope $-(1/2)$.
 If unemployment rises by 1 unit, inflation falls by $(1/2)$ a unit. So to reduce inflation by 5 units, a 10-unit rise in unemployment has to be tolerated.
 The slope of the long run Phillips curve is infinity. It means that there is no trade-off between inflation and unemployment in the long run. [7]

33. Actual level of investment = Planned investment + involuntary change in inventory = Rs. (250+300).
 Planned consumption demand is met here, since there is excess supply. So both planned and actual savings are equal.
 Planned investment does not change. Change in actual investment is – Rs.300. [7]

34. Let the LM curve be: $Y = a + br$
 $1500 = a + 4b$ (i)
 $2000 = a + 5b$ (ii)
 From (i) and (ii), we get
 $a = -500$ and $b = 500$
 The LM equation is : $Y = -500 + 500r$

The slope of the LM curve is given by $\frac{5-4}{2000-1500}$. [4]

35. From the utility function it is clear that the individual is risk averse.
The expected return from the lucky draw is also Rs.200.
So he will choose the certain return of the part-time job. [4]

36.

(a)

$$p_1 = 100 - 35 = 65$$

$$p_2 = 50 - \frac{35}{2} = 32.50$$

$$C = 800 + 20 \times 70 = 2200$$

$$\text{Pr ofit} = 65 \times 35 + 32.50 \times 35 - 2200 = 1212.50$$

(b)

$MR_1(35) = 30, MR_2(35) = 15$. He gains 30 units in market 1 and loses 15 units in market 2.
So his net gain from the given reallocation of sales is 15 units.

(c)

The discriminating monopolist maximizes profit where

$$MR_1 = MR_2 = MC$$

$$100 - 2q_1 = 50 - q_2 = 20$$

$$q_1 = 40; q_2 = 30$$

$$\text{Pr ofit} = 60 \times 40 + 35 \times 30 - 2200 = 1250$$

The monopolist can earn Rs. 37.50 (1250-1212.50) of more profit by reallocating the output.

(d)

$$MR_1 = p_1 \left[1 - \frac{1}{|e_1|} \right]$$

$$|e_1| = 1.5$$

$$MR_2 = p_2 \left[1 - \frac{1}{|e_2|} \right]$$

$$|e_2| = \frac{7}{3}$$

$$|e_1| < |e_2|; p_1 > p_2$$

The monopolist should charge the lower price in the market where the demand is relatively elastic and should charge the higher price in the market where the demand is relatively inelastic. [13]
