Actuarial Society of India

EXAMINATIONS

June 2005

CT7 – Economics

Indicative Solution

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

27. (i) Expected payoff from the gamble G1 = Expected payoff from the gamble G2=300. Again, from the utility function it is clear that the individual is a risk averter. Hence the individual in this case will choose the gamble with lower risk as measured by the variance of the gamble. Variance of G2 >Variance of G1. Therefore the individual will prefer G1 to G2.

(ii) $U = 3W + a \Rightarrow$ the individual is risk neutral. Hence the individual is indifferent between G1 and G2.

(iii) Suppose the risk premium charged by the insurer is q. Let K be the amount of insurance bought by the individual. Therefore the expected return to the insurer is $qK - p_2 K > 0 \Rightarrow q > p_2$. When $q = p_2$, the individual fully insures against the loss. Hence, when $q > p_2$, the individual will not fully insure against the loss.

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(A) Monetarist; (B) Keynesian; (C) Monetarist; (D) Keynesian

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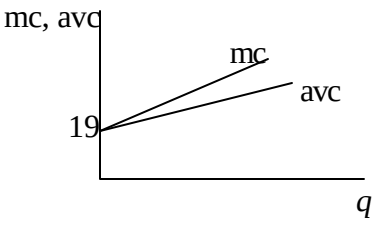
When the industry is in equl: the price p solved from,

(i) $100 - 2p = 10 + 3p \Rightarrow p = 18$. $Q = 64$.

Marginal cost and the average variable cost functions of the representative firm given by ,

(ii) $mc = 19 + 6q.$
$avc = 19 + 3q.$



(iii) Since the industry equilibrium price $18 < avc(\min)$,the optimum q for the firm is 0.

30

(i)and(ii)

output Q	total revenue TR	marginal revenue MR	marginal cost MC
1	Rs.20	Rs.20	Rs. 4
2	Rs.36	Rs.16	Rs. 2
3	Rs.48	Rs.12	Rs. 5
4	Rs.56	Rs. 8	Rs. 8
5	Rs.60	Rs. 4	Rs.11
6	Rs.60	Rs. 0	Rs. 14

(iii)profit is maximized at $Q = 4$, $P = 14$, max profit = $56 - 19 = 37$.

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(i) equilibrium Y is solved from $Y = 600 + .7Y \Rightarrow Y = 2000.$

(ii) aggregate saving in equilibrium $S(Y) = .3Y - 100 = 500$,
arggregate planned inv $I = 500$. Hence in equlibrium $S(Y) = I$
Now consider $Y = 2100 > 2000$.
At $Y = 2100$ aggregate planned demand = $2070 < 2100 \Rightarrow$ unplanned investment is 30
$\Rightarrow$ actual investment = 500+30 =530.
Now planned S and actual S are always equal in SKM since firms carry adequate inventory so that planned consumption demand is always met. Now, at $Y = 2100$, $S(Y) = .3Y - 100 = 630 - 100 = 530 \Rightarrow S(Y) =$ actual investment.
Similarly this can be shown to be true for every $Y < equlibrium\, Y$.
This is obviousily true at equlibrium Y where actual investment= planned investment.

32

$C = 90$, consumer goods added to inventory is $110 - 90 = 20 \Rightarrow$
unpl. inventory change of consumer goods = 20.
gross actual inv. , I = 5+10 + 20 = 35 .
Net actual inv. I (net) = $35 - 10 - 10 = 15$.
GDP=90+35= 125,

NDP = 125 – 20 = 105.

33.

(i) $Y^d = a + bY + 200$. Y^d at $Y = 1000$ is $a + 1000b + 200 \Rightarrow$

Invol. Change in inventory= $-(a + 1000b + 200 - 1000) = -200 \Rightarrow a + 1000b = 1000$ (1).
Similarly, $3000 - a - 3000b - 200 = 200 \Rightarrow a + 3000b = 2600$ (2)
$(2) - (1) \Rightarrow 2000b = 1600 \Rightarrow b = .8$
Hence from (1) we get, $a = 200$.
Thus $C = 200 + .8Y$

(iii) Multiplier = $\frac{1}{1 - .8} = 5$

34.

(a) $MR_P = 225 - 0.01Q_P$; $MR_S = 125 - 0.0025Q_S$; MC = 25
$MR_P = MR_S = MC$
$225 - 0.01Q_P = 125 - 0.0025Q_S = 25$
$Q_P = 20{,}000$; $Q_S = 40{,}000$; Q = 20,000 + 40,000 = 60,000
$P_P = 225 - 0.005 \times 20{,}000 = 125$; $P_S = 125 - 0.00125 \times 40{,}000 = 75$
TC = 1,500,000 + 25x60,000 = 3,000,000
Profit = 125x20,000 + 75x40,000 – 3,000,000 = 2,500,000

(b) $MR_P = P_P\left[1 - \frac{1}{|e_P|}\right]$; $MR_S = P_S\left[1 - \frac{1}{|e_S|}\right]$
$MR_P = MR_P = 25$; $P_P = 125$; $P_S = 75$
$e_P = 1.25$; $e_S = 1.5$
Yes. MSU should charge lower price from the market where the price elasticity of demand is relatively high and should charge higher price from the market where price elasticity of demand is relatively low.

35.
The answer is to be worked out in terms of the AD-AS model.

36.
(A) false as it makes prices faced by buyers of factor services and sellers of factor services different
(B) true as it makes prices faced by buyers and sellers different
(C) true as expenditure on food rises less than proportionately with income
(D) true as expenditure on air travel rises more than proportionately with income