

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [2016-19]

B.A./B.Sc. THIRD SEMESTER (July – December) 2017

Mid-Semester Examination, September 2017

Date : 12/09/2017

ECONOMICS (Honours)

Time : 11 am – 1 pm

Paper : III

Full Marks : 50

[Use a separate Answer Book for each group]

Group – A

Answer **any two** questions from **Question nos. 1 to 3** :

[2×5]

1. Consider an economy with given amounts of goods $x = \bar{x}$ and $y = \bar{y}$, with two individuals A and B. Analyse by means of the Edgeworth Box diagram how the individuals will reach the contract curve. Hence derive the utility possibility frontier.

[2+3]

2. Show that perfect competition in the market leads to pareto optimum but not necessarily to the welfare maximum position of the economy.

[5]

3. In the presence of externality in production, the cost functions of two firms are : $C_1 = 2q_1^2 + 20q_1 - 2q_1q_2$, $C_2 = 3q_2^2 + 60q_2$. when the given fixed market price is 240.

a) Determine the output levels of firms when they maximise profits privately.

[1]

b) Determine the Pareto optimal levels of output.

[2]

c) Determine the taxes and subsidies that will lead the firms to Pareto-optimal output levels but leave their profits unchanged.

[2]

Group – B

4. Answer **any one** question :

[1×5]

a) Let Biswanath has the utility function $U(x) = 10\sqrt{x}$ where x denotes the amount of money available to him. Suppose, he has Rs. 100. However, he has the option of buying a lottery that will cost him Rs 51. If purchased, the lottery pays Rs 351 with probability p , and pays 0 (nothing) with remaining probability. Assume that Biswanath is an expected utility maximizer. Find the range of values of p for which he will buy the lottery.

[5]

b) Robosteel produces x units of steel at per unit cost of c which are *entirely* bought by Auro Cars Inc. and produces x cars using only this steel as input. Auro Cars is a monopolist in car industry and faces a market demand of $p=a-q$ where q denotes the number of cars. If Auro Cars acquires Robosteel, then compare the amount of steel production between this new situation and the situation when the companies were under different ownership. Show your results graphically and provide the intuition if your results are different between the two scenarios. [2·5+2·5]

Answer **any one** of the following from **Question No. 5 & 6** :

[1×10]

5. To reduce traffic violations, the Police Commissioner of a city wants to install cameras at big traffic intersections at the cost of Rs.10,000 per camera. The probability function of a driver getting caught is given by $P(x) = \frac{x}{4}$ where $x = \{0,1,2,3,4\}$ denotes the number of cameras installed in an intersection. Assume all the drivers are risk-neutral.

a) Suppose the current fine for traffic violation with two cameras installed is Rs.20. What is the required amount of fine to be imposed, and how many cameras should be installed (1, 2, 3, or 4) to achieve the current level of deterrence against traffic violation at the minimum cost?

[8]

b) How will the answer change if drivers are highly risk-averse?

[2]

6. A landlord wants to hire a labourer who will prepare the ground for farming. The hired labourer is hard working with probability 0.25 and lazy with probability 0.75. A hard working labourer can do the task properly with probability 0.8 and a lazy labourer can do the same with 0.4. The landlord makes a profit of Rs. 1000 from farming if he gets a properly done ground and gets nothing if the ground is not prepared properly. In either case, however, the labourer has to be paid a wage of Rs. 100.
- a) Find the expected profit of the landlord. [3]
- b) Suppose instead of a fixed payment, the landlord pays a commission of $t\%$ on its profit to the salesman (i.e., if the ground is done properly the labourer gets $\text{Rs. } 1000 \times \frac{t}{100}$ and nothing otherwise). The labourer, irrespective of whether he is hard working or lazy, has an alternative option of working for Rs. 80. Find the profit maximizing value of t for the landlord. [7]

Group – C

7. Answer **any two** questions : [2×5]
- a) Explain Goulet's notion of economic development.
- b) Per Capita Income is a sufficient measure of economic development. Do you agree?
- c) What does the Human Development index tell us?

Answer **any one** of the following from **Question No. 8 & 9** : [1×15]

8. Describe three basic features of underdevelopment. Describe in detail Prof. A. K. Sen's 'Capability Approach' of understanding development. [5+10]
9. a) Distinguish between the notions of economic growth and economic development. [10]
- b) 'Despite the existence of diverse set of developing nations, they have some common characteristics' —Explain. [5]

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