

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. THIRD SEMESTER EXAMINATION, MARCH 2022

SECOND YEAR [BATCH 2020-23]

ECONOMICS (HONOURS)

PAPER : V [CC5]

Date : 02/03/2022

Time : 11 am – 1 pm

Full Marks : 50

1. Answer **any three** questions of the following : [3×4]

- a) George has \$5000 to invest in a mutual fund. The expected return on mutual fund A is 15 percent and the expected return on mutual fund B is 10 percent. Should George pick mutual fund A or fund B?
- b) Jayanti is shopping and sees an attractive shirt. However, the price of \$50 is more than she is willing to pay. A few weeks later, she finds the same shirt on sale for \$25 and buys it. When a friend offers her \$50 for the shirt, she refuses to sell it. Explain Jayanti's behavior.
- c) Why is a firm's demand for labor curve more inelastic when the firm has monopoly power in the output market than when the firm is producing competitively?
- d) Rock musicians sometimes earn several million dollars per year. Can you explain such large incomes in terms of economic rent?
- e) The only legal employer of military soldiers in the United States is the federal government. If the government uses its knowledge of its monopsonistic position, what criteria will it employ when determining how many soldiers to recruit? What happens if a mandatory draft is implemented?
- f) A firm uses a single input, labor, to produce output  $q$  according to the production function  $q = 8\sqrt{L}$ . The commodity sells for \$150 per unit and the wage rate is \$75 per hour. Find the profit-maximizing quantity of  $L$ .

2. Answer **any one** question of the following : [1×8]

- a) As the owner of a family farm whose wealth is \$250,000, you must choose between sitting this season out and investing last year's earnings (\$200,000) in a safe money market fund paying 5.0 percent or planting summer corn. Planting costs \$200,000, with a six-month time to harvest. If there is rain, planting summer corn will yield \$500,000 in revenues at harvest. If there is a drought, planting will yield \$50,000 in revenues. As a third choice, you can purchase AgriCorp drought-resistant summer corn at a cost of \$250,000 that will yield \$500,000 in revenues at harvest if there is rain, and \$350,000 in revenues if there is a drought. You are risk averse, and your preference for family wealth

(W) is specified by the relationship  $U(W) = W$ . The probability of a summer drought is 0.30, while the probability of summer rain is 0.70. Which of the three options should you choose? Explain.

- b) There are two sellers,  $H$  and  $L$ , in a second-hand goods market where product quality varies. The sellers know the quality of their own product but the buyers cannot distinguish the product quality without further information. Sellers' valuation of their own product is based on the quality.  $H$  is willing to sell his product with quality  $Q_H$  at a price  $P_H$  per unit and  $L$  is willing to sell the product with quality  $Q_L$  at a price  $P_L$  per unit such that

$$Q_H > Q_L \text{ and } P_H > P_L$$

This market will suffer from-

- (A) adverse selection
- (B) moral hazard
- (C) market failure
- (D) excess supply

Which option/s is/ are correct? Explain your answer in detail.

3. Answer **any two** questions of the following :

[2×15]

- a) Suppose that Rupa's utility function is given by  $u(I) = 10I$ , where  $I$  represents annual income in thousands of dollars.

- i) Is Rupa risk loving, risk neutral, or risk averse? Explain.
- ii) Suppose that Rupa is currently earning an income of \$40,000 ( $I = 40$ ) and can earn that income next year with certainty. She is offered a chance to take a new job that offers a .6 probability of earning \$44,000 and a .4 probability of earning \$33,000. Should she take the new job?
- iii) In (ii), would Rupa be willing to buy insurance to protect against the variable income associated with the new job? If so, how much would she be willing to pay for that insurance?

(5+5+5)

- b) i) Assume that workers whose incomes are less than \$10,000 currently pay no federal income taxes. Suppose a new government program guarantees each worker \$5000, whether or not he or she earns any income. For all earned income up to \$10,000, the worker must pay a 50-percent tax. Draw the budget line facing the worker under this new program.

How is the program likely to affect the labor supply curve of workers?

- ii) Suppose there are two groups of workers, unionized and nonunionized. Congress passes a law that requires all workers to join the union. What do you expect to happen to the wage rates of formerly nonunionized workers? Of those workers who were originally unionized? What have you assumed about the union's behavior? Explain graphically. (8+7)
- c) Consider an economy where two individuals A and B are endowed with some amount of the two commodities – commodity 1 and commodity 2. Show how through the price mechanism they can reach at a mutually beneficial equilibrium. Is the equilibrium efficient? Explain. (8+7)
- d) A firm's short-run revenue is given by  $R = 10e - e^2$ , where  $e$  is the level of effort by a typical worker (all workers are assumed to be identical). A worker chooses his level of effort to maximize wage less effort  $w - e$  (the per-unit cost of effort is assumed to be 1). Determine the level of effort and the level of profit (revenue less wage paid) for each of the following wage arrangements. Explain why these different principal-agent relationships generate different outcomes.
- i)  $w = 2$  for  $e \geq 1$ ; otherwise  $w = 0$ .
- ii)  $w = R/2$ .
- iii)  $w = R - 12.5$ . (5+5+5)

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