PG/IS/ECO/101/23

M.A./M.Sc. 1st Semester Examination, 2023

ECONOMICS

(*Advanced Microeconomic Theory*)

PAPER—ECO-101

Full Marks : 50

Time : 2 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

GROUP – A

I. Answer any **two** of the following questions : 2×2

1. Formulate a problem of constrained optimization for which the Lagrange multiplier can be interpreted as the marginal productivity of cost.

2. Briefly explain why the PPF (Production Possibility Frontier) of a country is normally concave to the origin.

3. Briefly explain the basic characteristics of a public good.

4. Explain how the leverage condition of a joint stock company is defined.

II. Answer any **two** of the following questions : 4×2

5. What are the basic features of a perfectly competitive market ? Which one of them you think most important and why ? $2+2$

6. Distinguish between a necessary and a sufficient condition. Why are second order conditions generally explained as sufficient ? $2+2$

7. Define technological optimality of a firm. Explain different aspects of it. $2+2$

8. What is market failure ? What are the main reasons for market failure ? 2 + 2

III. Answer any **one** of the following question : 8 × 1

9. Define Pareto optimality. Derive the conditions of Pareto optimality. Show how through perfect competition Pareto optimality is attained. 2 + 4 + 2

10. Define 'team production' and 'information cost'. Discuss how these two concepts are used to explain the existence of 'firms' in an otherwise market economy. 3 + 5

GROUP – B

I. Answer any **two** questions : 2 × 2

11. What is sub-game perfect Nash equilibrium ?

12. Write the basic difference between the Bertrand model of price competition and Cournot model.

13. Distinguish between risk and uncertainty.

14. What is fair gamble ?

II. Answer any **two** questions : 4×2

15. Show that in any Nash equilibrium for the Cournot duopoly model with cost, $c > 0$ per unit for the two firms and an inverse demand function p(.) satisfying $p'(q) < 0$ for all $q \geq 0$ and $p(0) > c$, the market price is greater than c (the competitive price) and smaller than the monopoly price. The symbols are of usual meaning.

16. Determine the equilibrium of a firm with the trade-off between risk and uncertainty.

17. Write a short note on Asymmetric information and the market for lemons.

18. With suitable hypothetic example describe insurance and gambling considering two types of individuals, risk averse and risk lover.

III. Answer any **one** question : 8×1

19. Consider the following strategy :

$$p_{jt}(H_{t-1}) = \begin{cases} p^m \text{ if all elements of } H_{t-1} equal (p^m, p^m) \text{ or } t = 1 \\ c \quad \text{otherwise} \end{cases}$$

The strategy constitutes a subgame perfect Nash equilibrium of the infinitely repeated Bertrand duopoly game if and only if discount factor, $\delta \geq \frac{1}{2}$.

20. Describe how adverse selection results to moral hazard. Briefly explain how signalling helps in screening and results in separating equilibrium.

[Internal Assessment — 10 Marks]
