

FIRST SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

(CCSS)

Financial Economics

FEC 1C 03—MATHEMATICS FOR ECONOMICS

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A*Answer all questions.**All questions carry equal marks.*

1. Functions of the form $y = f(x)$ express y explicitly in terms of x are called :
 - (a) Convex functions.
 - (b) Explicit functions.
 - (c) Implicit functions.
 - (d) Exponential functions.
2. Given $y = 40 - 4p$, find the derivative for the inverse of the function :
 - (a) 1.
 - (b) 4.
 - (c) $\frac{1}{4}$.
 - (d) $-\frac{1}{4}$.
3. The derivative of a constant function is :
 - (a) One.
 - (b) Infinity.
 - (c) Constant itself.
 - (d) Zero.
4. Differentiate $10x^2$ with respect to x :
 - (a) $10x$.
 - (b) $20x$.
 - (c) $20x^2$.
 - (d) 20.
5. A polynomial of degree 0 is also called :
 - (a) Constant function.
 - (b) Quadratic function.
 - (c) Cubic function.
 - (d) Linear function.
6. If, $A = \begin{bmatrix} 4 & 1 \\ -3 & 2 \end{bmatrix}$, find the determinant of A :
 - (a) 5.
 - (b) 9.
 - (c) 11.
 - (d) -11 .

Turn over

7. The derivative of a sum of two function is simply equal to :
- The sum of the separate derivatives.
 - Derivative of a power function.
 - Derivative of the product of the functions.
 - None of these.
8. If total cost, $TC = 10 + q + q^2$, find the marginal cost :
- $10 + 2q$.
 - $1 + 2q$.
 - $q + 2q$.
 - $1 + q$.
9. Bonds prices and interest rates are :
- Not related.
 - Positively related.
 - Inversely related.
 - Linearly related.
10. _____ is a long-term investment that is issued by an insurance company and is designed to help protect you from the risk of outliving your income.
- Net present value.
 - Depreciation.
 - Debit repayments.
 - Annuity.

(10 × 1 = 10 marks)

Part B

*Answer any five questions.
Each question carries 2 marks.*

- Define explicit function. Give an example.
- Calculate the derivative of $f(x) = 2x^3 - 4x^2 + x - 33$.
- Define continuity of a function.
- Given the total utility function $u = xy + 3x + 4y$, find the marginal utility of x and y .
- A firm has the following total cost function $TC = Q^3 - 30Q^2 + 400Q + 500$. At what level of output is the firm's marginal cost equal to rupees 100 ?
- How do interest rates affect government bonds ?
- Distinguish between NPV and IRR.

18. Find the transpose of the following matrix :

$$F = \begin{bmatrix} -6 & 0 & 0 \\ 0 & 7 & 0 \\ 0 & 0 & 2.5 \end{bmatrix}.$$

(5 × 2 = 10 marks)

Part C

Answer any **eight** questions.

Each question carries 5 marks.

19. Define Optimization. Optimize the function $x = 2x^3 - 30x^2 + 126x + 59$.
20. What is meant by linear algebra? Discuss the applications of linear algebra.
21. Assume that the demand and supply functions are $Q_d = 40 - 4P$ and $Q_s = -20 + 4P$ respectively. Determine equilibrium price and quantity.
22. Given the following total cost function, determine the level of output that minimises the average cost and marginal cost : $TC = q^3 - 24q^2 + 600q$.
23. Explain the economic applications differentiation.
24. Explain inverse of a matrix. Solve the following equations using matrix method :
- $$\begin{aligned} 2x - 3y + 5z &= 11 \\ 5x + 2y - 7z &= -12 \\ -4x + 3y + z &= 5. \end{aligned}$$
25. Distinguish between singular and non-singular matrices. Give examples for each.
26. If area bounded by the curves $y^2 = 4ax$ and $y = mx$ is $a^2/3$, then find the value of m .
27. Explain Cobweb theory.
28. Find the maxima and minima for $f(x) = 2x^3 - 21x^2 + 36x - 15$.
29. Distinguish between simple interest rate and compound interest rate. Assume that the difference between the compound interest, compounded annually and the simple interest on a certain sum for 2 years at 6% per annum is Rs. 18. Find the sum.

Turn over

30. Differentiate between minor and cofactor of a matrix. Calculate cofactor of the given matrix :

$$A = \begin{bmatrix} 1 & 9 \\ 2 & 5 \end{bmatrix}.$$

(8 × 5 = 40 marks)

Part D

*Answer any two questions.
Each question carries 10 marks.*

31. Define rank of a matrix. Determine the rank of the given matrix :

$$A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 3 & 1 \\ 1 & 1 & 2 \end{bmatrix}$$

32. What is partial differential equation ? Discuss the difference between total and partial differentials. Give examples.
33. What are the important rules of differentiation ? Solve the differentiate the function :
 $(x^2 + 3)(5x + 4)$ using product rule.
34. Explain initial condition and boundary condition. Find the integral for $y = f(x^{1/2} + 3x^{-1/2})dx$ given the initial condition $y = 0$ when $x = 0$.

(2 × 10 = 20 marks)

FIRST SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021**(CCSS)****Financial Economics****FEC 1C 02—MACROECONOMIC THEORY AND POLICY****(2019 Admissions)****Time : Three Hours****Maximum : 80 Marks****Part A***Answer all questions.**All questions carry equal marks.*

1. The random walk model of consumption was introduced by :
 - a) Robert Hall.
 - b) Friedman.
 - c) Keynes.
 - d) Duesenberry.
2. Which among the following is a *wrong* conclusion about IS-LM model ?
 - a) Monetary policy has no effect on the IS curve.
 - b) LM curve deals with flows, not stocks.
 - c) Fiscal policy has no direct effect on the LM curve.
 - d) Expansionary fiscal policy shifts the IS curve to the right.
3. The inventory approach to demand for money is associated with the name :
 - a) Friedman.
 - b) Baumol.
 - c) Tobin.
 - d) Keynes.
4. Underemployment equilibrium :
 - a) Describes a state in an economy where underemployment is persistently higher than usual.
 - b) Describes that the unemployment rate will be greater than the NAIRU rate of unemployment.
 - c) Can be solved through deficit spending and monetary policy to stimulate the economy.
 - d) All the above.

Turn over

5. The speculative demand for money becomes _____ in the liquidity trap situation.
- a) Inelastic.
 - b) Infinitely large.
 - c) Relatively inelastic.
 - d) Very high.
6. Identify the correct statements related to Ratchet Effect :
- Statement I It is associated with Duesenberry's relative income hypothesis.
- Statement II When income of individuals or households falls, their consumption expenditure does not fall much.
- Statement III People maintain their earlier consumption level by reducing their savings
- a) Statements I and II are correct.
 - b) Statements II and III are correct.
 - c) Statements I and III are correct.
 - d) Statements I, II and III are correct.
7. According to real business cycle theory :
- a) Increase in taxes would significantly reduce labor supply, increase employment and decrease output.
 - b) Increase in taxes would result in a decline in employment but not in output.
 - c) Increase in taxes would significantly reduce labor supply, decrease employment, and decrease output.
 - d) Increase in taxes would not affect output and employment.
8. The proportion of permanent income that is consumed depends upon :
- a) Rate of interest.
 - b) Desire to add to one's wealth.
 - c) The proportion of non-human wealth to human wealth.
 - d) All the above.
9. In the Keynesian range of LM curve, the monetary policy is :
- a) Fully effective.
 - b) Partially effective.
 - c) Fully ineffective.
 - d) Effectiveness varies in accordance with the volume of money supply.

26. Explain the concept of Marginal Efficiency of Investment and its importance in making investment decisions.
27. Discuss Keynesian concept of labour market.
28. Distinguish between ratchet effect and demonstration effect.
29. Explain the relative income hypothesis of James Duesenberry.
30. Explain the meaning, features and phases of business cycle.

(8 × 5 = 40 marks)

Part D

Answer any two questions.

Each question carries 10 marks.

31. Critically examine the permanent income hypothesis of Milton Friedman.
32. Illustrate and explain IS-LM general equilibrium. Analyze the relative effectiveness of monetary and fiscal policies with the help of IS-LM model.
33. What is meant by high powered money ? Discuss the H-theory of money supply.
34. What is meant by real business cycle theory ? Point out major propositions of the real business cycle model. Examine Hawtrey's monetary theory of trade cycle.

(2 × 10 = 20 marks)

FIRST SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

(CCSS)

Financial Economics

FEC 1C 01—MICRO ECONOMIC THEORY AND POLICY—I

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A*Answer all questions.**Each question carries 1 mark.*

1. The entry-preventing price in Sylos's model depends on :
 - (a) The elasticity of market demand.
 - (b) The technology of the industry.
 - (c) The prices of factors of production.
 - (d) All the above.
2. A cartel that works perfectly will replicate the :
 - (a) Monopoly price output combination.
 - (b) Competitive price output combination.
 - (c) Perfectly competitive price output combination.
 - (d) Oligopoly price output combination.
3. The *Pure Theory of Monopoly* has been authored by :
 - (a) Bertrand.
 - (b) Chamberlin.
 - (c) Edgeworth.
 - (d) Stackelberg.
4. The Linear Expenditure System :
 - I Deals with groups of commodities rather than individual commodities.
 - II Implies substitutability of groups of commodities.
 - III Shows that utility function is additive.
 - (a) I alone is correct.
 - (b) I and II are correct.
 - (c) I and III are correct.
 - (d) II and III are correct.

Turn over

5. When $\alpha + \beta = 1$, then Cobb-Douglas production function exhibits :
- (a) Constant returns to scale.
 - (b) Decreasing returns to scale.
 - (c) Increasing returns to scale.
 - (d) First decreasing and then increasing returns to scale.
6. Neumann-Morgenstern utility function arises from :
- (a) Revealed preference hypothesis.
 - (b) Total utility hypothesis.
 - (c) Marginal utility hypothesis.
 - (d) Expected utility hypothesis.
7. Limit Pricing is a pricing strategy to :
- (a) Encourage competition.
 - (b) Discourage entry.
 - (c) Encourage sales.
 - (d) Maximize sales revenue.
8. Identify the correct statement/s comparing Stackelberg's model with Cournot's model :
- (a) Stackelberg's model is a sequential game; Cournot's is a simultaneous game.
 - (b) In Stackelberg duopolies, the quantity sold by the leader is greater than the quantity sold by the follower, while in Cournot duopolies quantity is the same for both firms.
 - (c) Stackelberg and Cournot equilibria are stable in a static model of just one period.
 - (d) All the above.
9. The stock adjustment principle has been developed by :
- (a) Lancaster.
 - (b) Nerlove.
 - (c) Houthakker.
 - (d) Taylor.
10. According to Edgeworth model :
- (a) The duopolists recognize their interdependence.
 - (b) Each duopolist assumes the other keeps its quantity constant.
 - (c) Each duopolist assumes the other keeps its price constant.
 - (d) The model explains price rigidity.

Part B

*Answer any five questions.
Each question carries 2 marks.*

11. Define risk pooling.
12. What is meant by Nash Equilibrium?
13. Differentiate between Minimax and Maximin in game theory.
14. What are economies of scope ?
15. Briefly explain the meaning of learning curve.
16. What do you mean by network externalities ?
17. Prepare a note on Sylos's Postulate.
18. Differentiate between Snob effect and Veblen effect.

(5 × 2 = 10 marks)

Part C

*Answer any eight questions.
Each question carries 5 marks.*

19. What are the different types of price leadership ? Explain barometric price leadership.
20. Distinguish between pure and mixed strategies.
21. Compare the duopoly models of Cournot and Bertrand.
22. Explain Baumol's theory of sales revenue maximization.
23. Explain the properties of Cobb-Douglas production function.
24. Examine how Sweezy portrays the problem of price rigidity with the help of kinked demand curve.
25. What do you mean by cost function ? Prepare a note on different types of short run costs.
26. Explain the new theory of consumer demand of Kelvin Lancaster.
27. Explain the meaning and characteristics of oligopoly.
28. Discuss the meaning, scope and applications of behavioral economics.
29. Derive long run Average Cost curve. Why is it called planning curve ?
30. Define dynamic demand functions. Give an account on Linear Expenditure System.

(8 × 5 = 40 marks)

Turn over

Part D

Answer any two questions.

Each question carries 10 marks.

31. What do you mean by limit pricing? Critically examine Bain's limit pricing theory.
32. Explain the stock-adjustment principle. Highlight how Houthakker and Taylor extended the stock-adjustment principle.
33. Examine Freedman-Savage Hypothesis. Bring out the improvement put forward by Markowitz.
34. Explain the properties CES production function. Point out its merits and demerits.

(2 × 10 = 20 marks)