

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester BA Economics Degree Examination, April 2025

BEC4C04 – Mathematical Methods for Economics IV

(2022Admission onwards)

Time: 1 ½ hours

Max. Marks : 40

Section A**Short Answer Questions. Maximum marks in this section is 10.****Students can attempt all questions.****Each question carries a maximum of 2 marks.**

1. Given the Marginal Revenue function $MR = 12 - Q$ find the Total Revenue Function
2. A demand function is given as $Q = 50 - 5p$ compute the price elasticity of demand at $p = 5$
3. Find the total cost and average cost functions if the marginal cost function $MC = 6x^2 + 8$ and fixed cost is 900
4. Evaluate $\int (6x^3 + 4x - 7) dx$
5. Calculate MP_L and MP_K for the production function $Q = 24KL + 10L^2 + 8K^2$
6. What are the advantages of Using Linear Programming in Economics?
7. The Marginal Propensity to Save (MPS) is given by $MPS = 0.2 + 0.1Y$, where Y is income. Derive the saving function if savings are zero when income is zero.

Section B**Short Essay/Paragraph Questions. Maximum marks in this section is 20.****Students can attempt all questions.****Each question carries a maximum of 5 marks.**

8. What are the importance of marginal concepts in economics?
9. Evaluate by substitution Method $\int 4x^2(x^3 + 5)^3$
10. A firm's marginal cost function is given by $MC = 10 + 2Q$. If the firm sets its price according to the demand function $P = 50 - Q$, determine the profit-maximizing quantity and price.
11. If $q_1 = 20 - 3p_1 + 4p_2$ be the demand function then find the value of direct and cross elasticities when $p_1 = 1$ and $p_2 = 2$
12. Given demand Function $D = 100 - 5q$, find the consumer surplus when equilibrium quantity is 5 Units

Section C

**Long Essay Questions. Answer any one questions.
The question carries a maximum of 10marks.**

13. Given the demand function $P_1 = 180 - 15x$ and $P_2 = 380 - 20y$ in two markets of a discriminating monopolist and his joint cost function is $C = 150 + 120(x + y)$ find the optimal quantities and prices for maximum profit.
14. Solve the following linear programming problem graphically:

Maximize $Z = 20x + 30y$

Subject to:

$$3x + 3y \leq 46$$

$$5x + 2y \leq 50$$

$$2x + 6y \leq 60$$

$$x, y \geq 0$$

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Fourth Semester BA Economics Degree Examination, April 2025

BEC4B05 – Quantitative Methods for Economic Analysis – II

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

Section-A

(Each question carries 2 Marks. Maximum Marks that can be scored in this section is 25)

1. Explain Null and alternative Hypothesis.
2. Differentiate discrete and continuous variable.
3. If $P(A)=0.4$, $P(A \cup B) = 0.7$ and $P(A \cap B) = 0.1$, Find $P(B)$.
4. A card is drawn from a well-shuffled deck of 52 cards. Find the probability of drawing a card which is neither heart nor a king.
5. Explain the meaning of sample space.
6. Standard Normal distribution.
7. In how many ways can a committee of 3 people be formed from a group of 7?
8. How does the sample size affect the standard deviation of the sampling distribution?
9. Define Simple random sampling.
10. If X is a random variable with $E(X) = 5$ and $Var(X) = 4$, what is its standard deviation?
11. Define a random experiment with an example.
12. Write the sample space for the following experiment, of tossing two coins.
13. Define interval estimation.
14. State the mean and variance of a binomial distribution.
15. Type I and Type II errors ?

Section-B

(Each question carries 5 Marks. Maximum Marks that can be scored in this section is 35)

16. State addition and multiplication theorem of probability.
17. Explain Binomial distribution characteristics and fittings ?
18. A university has to select an examiner from a list of 50 persons. 20 of them women and 30 men, 10 of them knowing Hindi and 40 not, 15 of them being teachers and the remaining 35 not. What is the probability of the university selecting a Hindi knowing women teacher?
19. What do you mean by conditional probability? Give an example.

20. Consider the experiment of tossing two coins simultaneously. Find the expectation and variance of the number of heads obtained.
21. Out of 500 items selected for inspection, 0.2% are found to be defective. Find how many lots will contain exactly no defective if there are 1000 lots.
22. Suppose that a central university has to form a committee of 5 members from a list of 20 candidates, out of whom 12 are teachers and 8 are students. If the members are selected at random, what is the probability that majority of the committee members are students?
23. What is cluster sampling? Explain its advantages.

Section-C

(Answer any two Questions and each carry 10 marks)

24. Compare and contrast probability and non – probability sampling methods. What are the advantages and disadvantages of each approach?
25. In recent years, the mean age of all college students in city X has been 23. A random sample of 42 students revealed a mean age of 23.8. Suppose their ages are normally distributed with a population standard deviation of $\sigma = 2.4$. can we infer at $\alpha = 0.05$ that the population mean age has changed?
26. Market studies have shown that 30% of chartered accountants leave their jobs to start their own consultancy. Among those who leave their jobs 60% have degree in law while 20% of those do not leave, have a law degree. If a chartered accountant has a law degree, what is the probability that he will leave his current job to set up his own consultancy firm?
27. Explain the procedure of hypothesis testing.

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester BA Economics Degree Examination, April 2025

BEC4B06 – Indian Economic Development : National and Regional II

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

PART -A

Answer All Questions

Each Question Carries Two Marks

Ceiling -25 Marks

1. What do you mean by 'cropping pattern'?
2. Define 'exchange rate'
3. Differentiate between FDI and FPI
4. FCI
5. What is MNCs?
6. Define emigration
7. What do you mean by a 'sick industry'?
8. HYVP
9. What is Co-operative Farming?
10. TPDS
11. What does it mean by 'Public Sector Enterprises'?
12. FEMA
13. Tenancy reforms
14. What do you understand by the term 'disinvestment'?
15. Foreign Trade Policy (FTP) 2023

PART - B
Answer All Questions
Each Question Carries Five Marks
Ceiling -35 Marks

16. Explain the role of agriculture in Indian economy
17. Make a note on various measures taken for Land Reforms in India
18. What are the major features and objectives of Public Distribution System in India
19. Explain major problems of Small-Scale Industries in India
20. Discuss the features of New Industrial Policy 1991
21. Analyze the role and significance of tourism in Kerala economy
22. What is convertibility of rupee? Explain its types
23. Examine various government measures to facilitate agricultural marketing in India

PART - C
Answer Any Two Questions
Each Question Carries Ten Marks

24. Analyze the effects of green revolution on Indian economy. Explain the features of New Agricultural Strategy.
25. Discuss key features of National Manufacturing Policy and Make in India initiative in detail. Explain its role in boosting India's manufacturing sector.
26. Explain the trends and composition of India's export and import.
27. Examine the impacts of migration on Kerala economy. Discuss the trends and pattern of migration in Kerala.

(2 x 10 = 20 Marks)