

27

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE  
 Fourth Semester BA Degree Examination, March/April 2021  
**BEC4C04 – Mathematical Methods for Economics IV**  
 (2019 Admission onwards)

Time: 1.5 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. Find the marginal cost function given the average cost function  $AC = \frac{200}{Q} + 10 + 5Q + 3Q^2$ .
2. Find the marginal product of capital ( $MP_K$ ) and the marginal product of labour ( $MP_L$ ) given the production function  $Q = 3KL + 6K^2 + 2L^2$ .
3. Find the integral  $y = \int (5x^4 - 3)dx$ , given the boundary condition  $y = 21$  when  $x = 1$ .
4. Marginal cost is given by  $MC = 50 + 20Q + 30Q^2$ . Fixed cost is 60. Find the total cost function.
5. What is meant by feasible solutions in Linear Programming Problem?
6. What are the limitations of Graphical method of LPP?
7. Given the production function  $Q = x^2 + 5xy + 4y^2$ , find the marginal productivity of the inputs  $x$  and  $y$ .

**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. Explain the advantages and disadvantages of linear programming.
9. Describe the formulation of LPP with the help of an example.
10. Given the total revenue function  $TR = 1400Q - 6Q^2$  and total cost function  $TC = 1500 + 80Q$ , find the quantity ( $Q$ ) at which profit is maximum.
11. Determine the integral  $\int 10x(x^2 + 3)^4 dx$  using the substitution method.
12. Given the supply function  $P = (Q + 3)^2$ , find the producer's surplus at equilibrium price = 81 and equilibrium quantity = 6.

### Section C

Long Essay Questions. Answer any one questions.

The question carries a maximum of 10marks.

13. Determine the maximum utility given the utility function  $U = xy + 3x + y$  and the budget constraint  $8x + 12y = 212$ .

14. Solve the following LPP graphically

$$\text{Minimize } Z = 6x_1 + 7x_2$$

subject to the constraints

$$3x_1 + 9x_2 \geq 36$$

$$6x_1 + 2x_2 \geq 24$$

$$2x_1 + 2x_2 \geq 16$$

and non-negativity restrictions

$$x_1 \geq 0, \quad x_2 \geq 0$$

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester BA Degree Examination, March/April 2021

**BEC4B05 – Quantitative Methods for Economic Analysis – II**

(2019 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. What are the uses of index numbers?
2. What is price relatives?
3. Define Factor reversal test
4. What is meant by time series analysis?
5. Define random sampling
6. Distinguish between mutually exclusive and mutually exhaustive events
7. Find the probability of getting at least one head when two coins are tossed
8. State Baye's theorem
9. Define sample space with an example
10. Distinguish between Discrete and continuous random variable
11. Define Normal distribution
12. Give two instances where Poisson distribution can be applied
13. Explain few useful functions in Excel
14. How to calculate the sum of the values in a column in Excel
15. If the mean and variance of a binomial distribution are 4 and 2 respectively. Find the probability of getting exactly two successes

**SECTION-B**

**Each question carries 5 Marks.**

**Maximum Marks that can be scored in this section is 35.**

16. Briefly explain the different components of time series
17. Compute the trend values by finding four yearly moving averages for the following time series data

Year	2000	2001	2002	2003	2004	2005	2006	2007
Value	310	330	318	360	390	400	405	410

18. For two events  $A$  and  $B$ ,  $P(A) = 0.3$ ,  $P(B) = p$ ,  $P(A \cup B) = 0.8$ . Find  $p$  if  $A$  and  $B$  are independent.

19. Write the syntax to find the probability for a binomial random variable to take the value  $x$  out of  $n$  trial with probability of success  $p$ .
20. A random variable  $X$  follows a Poisson distribution with mean 1. Calculate the probability that  
 (a)  $X = 0$     (b)  $X = 1$     (c)  $X \geq 2$
21. Write down the properties of Normal distribution
22. Briefly explain the uses of Excel in Economics and business analysis
23. Two fair dice are thrown. Find the probability that the sum of the numbers shown is more than 8.

### SECTION-C

(Answer any two Questions and each carries 10 marks)

24. Calculate Laspeyres's, Paasche's and Fisher's index number for the following data

Items	2015		2018	
	Price	Quantity	Price	Quantity
A	15	30	22	35
B	20	40	25	42
C	28	50	38	50
D	12	20	15	25
E	25	15	30	28

25. (a) Explain the following  
 (i) Equally likely events  
 (ii) independent events  
 (b) A bag contains 5 black and 6 green balls. Three balls are drawn at random. Find the probability that balls drawn are (i) one black and two green (ii) two black and one green

26. Fit a Poisson distribution to the following data

No. of accidents	0	1	2	3	4	5
No. of men	95	75	44	18	2	1

27. Calculate correlation coefficient using Excel

$X$	2	10	7	17	14
$Y$	22.9	45.78	33.49	49.77	40.94

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE  
Fourth Semester BA Degree Examination, March/April 2021

**BEC4B06– Macro Economics – II**

(2019 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

**Section: A**

**Short Answer Questions. Maximum marks in this section is 25.**

**Students can attempt all questions. Each question carries a maximum of 2 marks.**

1. What is Inflationary gap.
2. Write a short note on Tax multiplier?
3. Explain Mixed inflation.
4. Fisher Effect.
5. What is Keynesian Liquidity Trap?
6. State the four phases of business cycle.
7. Describe the measures of inflation in India.
8. Differentiate closed economy and Open economy
9. State Okun's law.
10. Write a note on Long Run Philips curve.
11. Differentiate Gross Investment and Net Investment
12. Write a brief note on MEC and MEI
13. State Friedman's view on Great Depression.
14. GDP Deflator
15. Write a short note on Keynesian Effective Demand Hypothesis.

**Section B**

**Short Essay/Paragraph Questions. Maximum marks in this section is 35.**

**Students can attempt all questions. Each question carries a maximum of 5 marks**

16. Critically examine the subjective and objective factors affecting MEC.
17. What is unemployment? Discuss types and costs of unemployment.
18. What is LM curve? Describe the factors that shifting and varying the slope of LM curve.

19. State the Accelerator Theory Investment.
20. Critically examine Philips curve and its modifications
21. Inflation affects different sections of society differently. Discuss.
22. Examine the impact of Global Recession 2008 on developed nations.
23. Briefly discuss the impact of recent pandemic Covid-19 on Indian Economy.

**Section: C**

**Long Essay Questions. Answer any two questions.  
Each question carries a maximum of 10 marks.**

24. IS LM model determines simultaneous equilibrium in goods and money markets. D
25. What is inflation? Discuss types, effects and various measures to control inflation.
26. Compare and Contrast Hawtrey's and Hayek's theories of trade cycle.
27. Answer any three of the following.
  - a) Great Depression of 1930s
  - b) Keynesian Investment Function
  - c) Schumpeter's theory of trade cycle.
  - d) Price Index Numbers – CPI and WPI

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester BA Sociology/ Economics Degree Examination, March/April 2021

**BHS4C01 - Modern Indian History : Selected Themes in Contemporary India**

(2019 Admission onwards)

Time: 1 ½ hours

Max. Marks: 40

**Section A**

All questions may be answered. Each question carries 2 marks. (Ceiling=10 marks)

1. Constituent Assembly
2. Unity in diversity
3. Nehru and Secularism
4. "Do or Die"
5. 'Direct Action Day'
6. Silent Valley Movement
7. New Economic Zone

**Section B**

All questions may be answered. Each question carries 5 marks.(Ceiling=20 marks)

8. Discuss the formation of linguistic states in India?
9. Write a note on the main provisions of Indian constitution
10. Write a note on the resistance movements against neo-colonialism
11. Discuss the rise of Hindutva politics after 1980's
12. Describe the salient features of Chipko Movement

**Section C**

Answer any one question (10 marks)

13. What is Privatization? How privatization has been implemented in India?
14. Trace the history of communalism in modern India