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Name.....

Reg. No.....

FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2025

Economics

ECO 4B 05—QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS—II

(2019—2023 Admissions)

Time : Two Hours and a Half

Maximum : 80 Marks

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. Optimization.
2. Weighted index numbers.
3. Partial differentiation.
4. Splicing.
5. Marginal productivity.
6. Factor reversal test.
7. Fertility rate.
8. Logarithmic function.
9. NIFTY.
10. Given the production function $q = 10a - a^2 + ab$, determine the marginal productivity with respect to a .
11. Price elasticity of demand.
12. Crude death rate.
13. Random experiment.
14. Wholesale Price Index.
15. Bernoulli trials.

Turn over

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. Explain probability. Assume that a bag contains 3 red balls and 4 black balls. A ball is drawn at random from the bag. Find the probability that the ball drawn is (i) black ; and (ii) not black.
17. Explain the uses of index numbers.
18. Explain Classical Probability. Point out properties of probability.
19. Distinguish between crude birth rate and crude death rate. Assume that the mid-year population of a city in an year was 4,80,500. If there were 10420 births and 6120 deaths in the year in the city. Compute the Crude Birth Rate and Crude Death Rate.
20. Differentiate Laspeyre's from Paasche's index number.
21. Explain the method of least squares. How do you calculate least squares ?
22. Describe the meaning and components of time series analysis.
23. What are the steps in constructing index numbers ?

Section C (Long Essay Questions)

*Answer any **two** questions.*

Each question carries a maximum of 10 marks.

24. Explain important rules of differentiation.

Differentiate :

i) $X^2 - 1/X^2 + 1$ with respect to $X - 1/X + 1$

ii) $X^{\log X}$.

25. Explain meaning and important types of vital statistics

26. Calculate Fisher's index numbers from the following data and show that it satisfies both the time reversal and factor reversal tests :

	2010		2020	
Item	Price	Quantity	Price	Quantity
A	12	100	20	120
B	4	200	4	240
C	8	120	12	150
D	20	60	24	50

27. Differentiate between mutually exclusive and collectively exhaustive events ? Explain Priori Classical probability.

(2 × 10 = 20 marks)