

FOURTH SEMESTER B.A. DEGREE EXAMINATION, APRIL 2022

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U ECO4 B05 - QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS II

(Economics - Core Course)

(2019 Admission onwards)

Time : 2.5 Hours

Maximum : 80 Marks

Credit : 4

Part A (Short answer questions)Answer **all** questions. Each question carries 2 marks.

1. If $xy = c^2$, Find $\frac{dy}{dx}$
2. Give the condition for maximum profit.
3. Define Marginal productivity.
4. How the number of items are a limitation of Index number?
5. Explain the weighted average of price relative.
6. Define Bowley's index numbers.
7. What is factor reversal test?
8. What do you mean by stock index?
9. What is seasonal variation?
10. Explain the concept of moving average.
11. Explain the registration method of vital statistics.
12. Explain the limitations of fertility rates.
13. What is Crude death rate?
14. Define an equally likely event with an example.
15. Define a dependent event with an example.

(Ceiling: 25 Marks)**Part B** (Paragraph questions)Answer **all** questions. Each question carries 5 marks.

16. Differentiate $(x^2 + 1)(x + 2)$.
17. If $y = 3x^2 - 2x^2 + 6x$, find $\frac{d^4y}{dx^4}$
18. Explain the relevance of Laspeyers Index numbers.
19. Write a note on Splicing.
20. Explain the importance of time series.
21. Two coins are tossed, what is the probability of getting (a) both heads (b) one head (c) at least one head (d) No head?
22. A bag contains 4 white, 2 black, 3 yellow and 3 red balls. What is the probability of getting a white or a red ball at random in a single draw of one?

23. Suppose that there is a chance for a newly constructed house to collapse where the design is faulty or not. The chance that the design is faulty is 10 %. The chance that the house collapse if the design is faulty is 95% and otherwise it is 45%. It is seen that the house collapsed. What is the probability that it is due to faulty design?

(Ceiling: 35 Marks)

Part C (Essay questions)

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

24. If

$$f(x) = \frac{9x}{x+2} \text{ for } x < 1;$$

$$f(x) = 3 \text{ for } x = 1;$$

$$f(x) = \frac{x+3}{x} \text{ for } x > 1,$$

Examine whether the function is continuous in the interval $(-3, 3)$.

25. (a) If

$$z = \frac{x^2 y^2}{x+y} \text{ show that}$$

$$x \frac{\partial z}{\partial x} + y \frac{\partial z}{\partial y} = 3z$$

(b) Find the first and the second partial derivatives for

$$z = 3x^3 - 2x^2y + 2xy^2 + y^3 + 8$$

26. Write a detailed explanation of cost of living index numbers.
27. Construct Fishers index number by the following data, and check whether the index number is ideal or not. Commodity P0 P1 Q0 Q1 A 4 7 10 8 B 5 9 8 6 C 6 8 15 12 D 2 2 5 6

(2 × 10 = 20 Marks)
