FOURTH SEMESTER B.A. DEGREE EXAMINATION, APRIL 2023

(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. Check whether the function $f(x) = \frac{1}{x^2-4}$ is continuous or discontinuous.

2. Find the derivative of x^{-3}.

3. If $x + y = a$, find $\frac{dy}{dx}$

4. If $y = e^{3x}$, find $\frac{d^2y}{dx^2}$

5. Find the partial derivative of $x^2 + y^2$.

6. Give the condition for minima of a function.

7. Give the condition for minimum cost.

8. What is Current Year?

9. How can we select a base year?

10. Define the price relative of a commodity.

11. Define Bowley's index numbers.

12. What is factor reversal test?

13. What is base shifting?

14. Explain the components of Time series.

15. Explain the concept of least squares.

(Ceiling: 25 Marks)

Part B (Paragraph questions)
Answer *all* questions. Each question carries 5 marks.

16. Distinguish the laspeyers and pasches index numbers.

17. Explain the importance of time series.

18. Write a note on moving average.

19. Explain the methods of obtaining vital events.

20. Explain various fertility rates.

21. A fair coin is tossed thrice. What is the proability that all the three tosses result in heads?

22. A bag contains 4 white, 2 black , 3 yellow and 3 red balls. What is the proability 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 whether 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 proability that it is due to faulty design?

(Ceiling: 35 Marks)

Part C (Essay questions)

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

24. Find (a) $\lim_{x \to 0} \frac{3x^2 + 4x^3}{2x}$ (b) $\lim_{x \to 2} \frac{x^2 - 3x + 2}{x^2 - 5x + 6}$ (c) $\lim_{x \to 1} \frac{x^2 - 4x - 5}{x + 1}$

25. The demand function of a monopolist is $p = 15 - 2x$ and the cost function is $C(x) = x^2 + 2x$. Find the (1) Marginal Cost (2) Mrginal Revenue (3) Equilibrium Output (4) Equilibrium Price (5) Average Cost (6) Average Cost when the output is 4 units.

26. What is standardised death rate and how this can be measured?

27. Two cards are drawn at random from a pack of cards. Find the proabilitry that (a) both are spades (b) both are kings (c) one is a spade and the other is a heart (d) the cards are of the same suit (e) the cards belong to different suits.

(2 × 10 = 20 Marks)

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