19U436S (Pages: 3) Name: ……..…….

Reg. No: ……..……..

FOURTH SEMESTER B.A DEGREE EXAMINATION, APRIL 2021

(CUCBCSS-UG)

CC15U ECO4 B05 - QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS II

(Economics - Core Course)

(2015 to 2018 Admissions - Supplementary/Improvement)

Time: Three Hours Maximum: 80 marks

Section A

Answer ***all*** questions. Each question carries ½ marks.

1. If A is any set, then AΩφ = _____.

   (a) A (b) φ (c) S (d) None of these

2. Variation due to unpredictable forces in time series is called _____.

   (a) Trend (b) Seasonal Variation

   (c) Cyclical Variation (d) Irregular Variation

3. There are two sets A= {3, 9} and B= {9, 1, 2}. Then what will be AUB?

   (a) {3,9,9,1,2} (b) {9} (c) {3,9,1,2} (d) {9,1,3}

4. In Paasche's index number the weight is _____.

   (a) Current year quantity (b) Current year price

   (c) Base year quantity (d) Base year price

5. Which one of the following indices satisfies both time reversal and factor reversal test?

   (a) Lasperyres index number (b) Fischer's index number

   (c) Paasches index number (d) Bowley's index number

6. Which one of the following index numbers is based on Geometric mean?

   (a) Lasperyres index number (b) Paasches index number

   (c) Fischer's index number (d) Bowley's index number

7. lf the occurrence of one event means that another cannot happen, then the events are

   (a) lndependent (b) none of the above

   (c) Mutually Exclusive (d) any event

8. Death rate obtained for a segment of a population is known as _____.

   (a) Specific death rate (b) Crude death rate

   (c) Standardised rate (d) Vital index

9. If $y = \frac{x}{2x}$ the derivative is

   (a) 0 (b) ½ (c) $2x^2$ (d) None of these

10. The function $2x^2 - 8x + 10$ is minimum at 'x' is equal to

(a) 4 (b) -8 (c) $2x$ (d) 2

11. The derivative of e^{x^2} is

(a) e^{x^2} (b) e^{2x} (c) $2e^{x}$ (d) $2xe^{x^2}$

12. The function $3x^3 + 3x^2 + x - 10$ is

(a) An increasing function (b) Decreasing function

(c) Standard function (d) None of the above

(12 × ½ = 6 Marks)

Section B

Answer any ***ten*** questions. Each question carries 2 marks.

13. Define random experiment.
14. Define mutually exclusive event.
15. If $z = xy + 7$, find $\frac{\partial^2 z}{\partial x\, \partial y}$.
16. Define time series.
17. State axiomatic definition of probability.
18. Find $\lim_{x \to 3} \frac{x^2-5x+6}{x^2-9}$.
19. What is meant by coast of living index?
20. Define crude death rate.
21. If the cost function $f(x) = 8x^2 + 2x + 4$, find the marginal cost of producing 5 units of product.
22. What are the measurements of trend?
23. Define continuity in the interval (a,b).
24. Define homogeneous functions.

(10 × 2 = 20 Marks)

Section C

Answer any ***six*** questions. Each question carries 5 marks.

25. Explain the components of time series.
26. Differentiate $\frac{(5x-2)^2}{x-3}$ with respect to x.
27. In a group of 100 sports car buyers, 40 brought alarm systems, 30 purchased bucket seats, and 20 purchased an alarm system and bucket seats. If a car buyer chosen at random bought an alarm system, what is the probability that they also bought bucket seats?

28. Find the partial derivatives of $2x^2 + 5xy + 3y^2 + 16$.
29. Explain measurements of mortality.
30. Explain types of sets with proper examples.
31. Two card are drawn from a pack of cards. Find the probability that,
    (a) Both are spade.
    (b) Both are kings.
    (c) The cards drawn are one spade and one heart.
    (d) The card belongs to same suit.
32. Explain uses and limitation of index numbers.

(6 × 5 = 30 Marks)

Section D

Answer any ***two*** question. Each question carries 12 marks.

33. Find the maximum and minimum values of the function $y = 2x^3 - 3x^2 - 12x + 4$
34. For the following data calculate Laspeyer's, Paasche's, Fischer's index numbers.

Items	1995		2000	
	Price	Quantity	Price	Quantity
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

35. Calculate: (i) GFR ; (ii) SFR ; (iii) TFR ; (iv) general reproduction rate from the following data:

Age group of child bearing females	Female population ('000)	Number of births occurring to female
15-19	48	1341
20-24	49	7350
25-29	46	9830
30-34	45	5340
35-39	40	1342
40-44	38	492
45-49	31	49

36. What are index numbers? Briefly discuss the problems in construction of index numbers.

(2 × 12 = 24 Marks)

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