FOURTH SEMESTER B.A DEGREE EXAMINATION, APRIL 2019

(Regular/Supplementary/Improvement)

(CUCBCSS-UG)

CC15U ECO4 B05 - QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS II

Economics – Core Course

(2015 Admission onwards)

Time: Three Hours   Maximum: 80 Marks

Section A

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

1. If $y = x^n$, then $\frac{dy}{dx} =$

   a. nx^n b. nx^{n-1} c. nx d. none of these

2. A function $f(x)$ is said to be continuous at x = a if

   a. $\lim_{x \to a} f(x) = a$ b. $\lim_{x \to a} f(x) = f(a)$ c. $f(x) = f(a)$ d. none of these

3. …………..is called ideal index number

   a. Fisher's index number   c. Laspeyre's index number

   b. Paasche's index number   d. None of these

4. …………..is the weight in Laspeyre's index number

   a. Base Year Quantity   c. Current Year Quantity

   b. Base Year Price   d. Current Year Price

5. The procedure of combining two or more overlapping series of index numbers into one continuous series is called…………..

   a. Splicing   b. deflating   c. Base shifting   d. none these

6. Number of components of time series is …………..

   a. 2   b. 3   c.4   d. none these

7. Variation due to unpredictable forces in time series is called …………..

   a. Trend   c. Seasonal Variation

   b. Cyclical Variation   d. Irregular Variation

8. Crude Birth rate=…………..

   a. $\frac{annualopulation}{annualbirth} \times 1000$ c. $\frac{annualbirth}{annualopulation}$

   b. $\frac{annualbirth}{annualopulation} \times 1000$ d. None ofthese

9. Sex ratio is defined as…………..

a. $\frac{toalnooffemales}{totalnoofmales}$

c. $\frac{toalnooffemales}{totalnoofmales}$ x 1000

b. $\frac{totalnoofmales}{toalnooffemales}$ x 1000

d. $\frac{totalnoofmales}{toalnooffemales}$

10. Probability of a null event is equal to…………..

     a. 0   b. 1   c. 0.5   d. none of these

11. Multiplication theorem for independent events state that

     a. $P(A \cap B) = P(A)P(B)$ c. $P(A \cap B) = P(A)P(A/B)$

     b. $P(A \cap B) = P(A)P(B/A)$ d. none these

12. If A and B are mutually Exhaustive events, then $A \cup B = \cdots$

     a. ϕ b. S   c. A   d. B

(12 × ½ = 6 Marks)

Section B
Answer any **ten** questions not exceeding one paragraph. Each question carries 2marks.

13. Find $\lim_{x \to 2} \frac{x^2 - 5x + 6}{x - 2}$

14. Find $\frac{dy}{dx}$ if $y = \frac{x-6}{(x+7)^2}$

15. Find the marginal cost of producing 10 units for the cost function $f(x) = 1 + 5x + 3x^2$

16. Define Time Series.

17. Define Principle of Least Squares.

18. Define Fisher's Index Number.

19. Define deflating.

20. Define infant mortality rate.

21. Define mutually exclusive events.

22. State addition theorem.

23. Give any two limitations of Index number.

24. Define Conditional Probability.

(10 x 2 = 20 Marks)

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

25. Find the Partial derivatives of $z = 3x^3 - 2x^2 + 2xy^2 + y^3 + 4$

26. Find the maxima and minima of $y = 2x^3 - 3x^2 - 12x + 4$

27. What are the Uses of Index Number?

28. Explain the Problems in the construction of Index number.

29. What are the different methods for collecting vital statistics.?

30. State and Prove Baye's Theorem.

31. A Card is drawn from a pack of cards. What is the probability that it is either a queen or a diamond?

32. Given $P(A) = 0.30$, $P(B) = 0.78$ and $P(A \cap B) = 0.16$ Find i) $P(A^c \cap B^c)$ and

     ii) $P(A \cap B^c)$

(6 x 5 = 30 Marks)

Section D
Answer any **two** questions. Each question carries ½marks.

33. State and prove Baye's theorem.

34. (a) Give the conditions for maxima and minima

     (b) Determine the maxima and minima values (if any) of $f(x) = x^3 - 6x^2 + 9x - 5$

35. What are the components of time series? Explain.

36. For the following data calculate Fisher's index number, and show that it satisfy time reversal test and factor reversal test.

Commodity	2010		2014	
	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

(2 x 12 = 24 Marks)

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(2)

(3)