16U426 (Pages: 3) Name: ………………………..

Reg.No………………………

FOURTH SEMESTER B.A DEGREE EXAMINATION, APRIL 2018

(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 $^1/_2$ mark.

1. The geometric mean of Laspeyre's and Paasche's index number is known as……

   a) Fisher's index number   b)Marshal –Edgeworth index number

   c) Dorbish and Bowley's index number   d) None of these

2. A function $f(x)$ is said to be continous 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. If $y = x^n$, then $\frac{dy}{dx}=$……….

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

4. For the cost function $c(x) = 1 + 5x + 3x^2$, the marginal cost of producing 10 units is………

   a) 66   b) 70   c) 65   d) none of these

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. The Component of time series attached to long term variations is termed as…….

   a) Cyclical variations b) Trend   c)Seasonal variations d) Irregular variations

7. Weather and Climate change are examples of………

   a) Trend   b) Cyclical variations c) Irregular variations d) Seasonal variations

8. Crude Birth rate =………………

   a) $\frac{annual\ population}{annual\ birth} \times 100$ b) $\frac{annual\ birth}{annual\ population}$

   $c)$ $\frac{annual\ birth}{annual\ population} \times 100$ d) None of these

9. Sex ratio is defined as……..

   a) $\frac{toal\ no\ of\ females}{total\ no\ of\ males}$ b) $\frac{toal\ no\ of\ females}{total\ no\ of\ males} \times 100$

   c) $\frac{toal\ no\ of\ males}{total\ no\ of\ females} \times 100$ d) $\frac{toal\ no\ of\ males}{total\ no\ of\ females}$

(1)   **Turn Over**

10. Two events A and B are said to be mutually exclusive if $A \cap B = \cdots$

    a) $\emptyset$ b) S   c)A   d) None of these

11. If A and B are any two events, Addition theorem of probability states that…….

    a)$P(A \cup B) = P(A) + P(B)$ b) $P(A \cup B) = P(A) + P(B) + P(A \cap B)$

    a) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ d) none of these

12. Probability of a sample space is equal to……..

    a) 0   b) 1   c) $0 \leq P(s) \leq 1$ d) None of these

(12×½=6 Marks)

Section B
Answer any *ten* questions. Each question carries *2* marks.
(Very short answer type questions. Not exceeding one paragraph.)

13. Find $\lim_{x \to 1} \frac{x^2 - 1}{x - 1}$.

14. Find the derivative of $y = 3x^2(2x - 5)$ with respect to x.

15. Define limit of a function.

16. Define time series.

17. State any two limitations of Index numbers.

18. State multiplicative model of time series.

19. What do you mean by vital statistics?

20. Define Infant mortality rate.

21. Mention the different methods of collecting the vital statistics.

22. Define Random experiment.

23. Define mutuallyexclusive events.

24. Explain the Frequency definition of probability.

(10 x 2 = 20 Marks)

Section C
Answer any *six* questions. Each question carries *5* marks.
(Short essay type questions. Not exceeding one page.)

25. Find the partial derivatives of $3x^2 y^2 + y^2$.

26. Differentiate $\frac{(5x-2)^2}{x-3}$ with respect to x.

27. Explain the problems in the construction of index numbers.

28. Calculate Laspeyre's index number for the following data.

Commodities	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	10	12	12	15
B	7	15	5	20
C	5	24	9	20
D	16	5	14	5

29. Explain the uses of time series analysis.

30. Calculate the age specific death rate for the following table

i.	Age group	15---20	20---25	25---30	30---35	35---40
ii.	Population	30000	20000	15000	10000	5000
iii.	Deaths	150	125	100	70	50

31. A card is drawn from a pack of well shuffled playing cards. What is the probability that it is either a heart or a king?

32. Given $P(A) = \frac{1}{3}, P(B) = \frac{3}{4}$ and $P(A \cup B) = \frac{11}{12}$ Find a) $P(A/B)$ b) $P(A^C \cap B^C)$

(6 x 5 = 30 Marks)

Section D
Answer any *two* questions. Each question carries *12* marks.

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

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

Commodities	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

35. Find the maximum and minimum value of the function $y = 1 + 4x - x^2$

36. A Problem in statistics is given to two students A and B whose chances of solving it are ½ and ¼ respectively. What is the probability that the problem is solved if both of them try independently?

(2 x 12 = 24 Marks)

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