

C 21589

(Pages : 4)

Name.....

Reg. No.....

**FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION  
APRIL 2022**

Economics

ECO 4B 05—QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS—II

(2019 Admission onwards)

Time : Two Hours and a Half

Maximum : 80 Marks

**Section A***Answer at least ten questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 30.*

1. Evaluate the limit of the function :

$$\lim_{x \rightarrow 3} \frac{x^2 - 3x + 2}{x^2 - 5x + 6}$$

2. Find the derivative for the following function 'y' first principles :

(i)  $4x^2 + 2x + 3$  ;

(ii)  $\frac{x+2}{x-1}$  ;

(iii)  $e^x$  ; and

(iv)  $\log x$ .

3. What are the important conditions for Maxima and Minima ?
4. Explain the relationship between AC and MC.
5. What are the important utilities of Consumer price indices ?
6. What is Marshall- Edgeworth index number ?

**Turn over**

7. What do you mean by Moving average method ?
8. What do you mean by Vital Statistics ?
9. Define Crude death rate.
10. How to find the growth of population ?
11. Explain the term (i) Sample space ; and (ii) Random experiments
12. Explain the term (i) Equally like events ; and (ii) Exhaustive events
13. A die is thrown. Find the probability of getting (i) a '4' ; (ii) an even number ; (iii) less than 3 ; and (iv) '3' or '5'.
14. Explain the Classical definition of Probability.
15. From a bag containing 10 black and 20 white balls, a ball is drawn at random. What is the probability that it is black ?

(10 × 3 = 30 marks)

**Section B (Short Essay Questions)**

*Answer at least five questions.*

*Each question carries 6 marks.*

*All questions can be attended.*

*Overall Ceiling 30.*

16. Find the Elasticity of demand for the demand function  $x = \frac{27}{p^3}$ .
17. (i) Find  $\frac{dy}{dx}$  if  $y = (x - 4)^5 + \log 3x + 7e^{x-1}$ .  
  
(ii) Find the value of  $\frac{dy}{dx}$  if  $2x^2 - 3xy + y^2 = 0$ .
18. Define Trend. What are the various methods of measuring it ?

19. From the data given below construct the Consumer Price index number :

Commodity	Price relatives	weights
Food	250	45
Rent	150	15
Clothing	320	20
Fuel and lighting	190	5
Miscellaneous	300	15

20. What are the important measurements of Fertility ?
21. What are the important methods of obtaining Vital Statistics in India ?
22. One card is drawn from a standard pack of 52. What is the probability that is either a king or a queen ?
23. Explain the concept of Mutually exclusive events with an example.

(5 × 6 = 30 marks)

### Section C (Long Essay Questions)

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

24. Calculate Fisher's ideal index from the following data and prove that it satisfies both the time reversal and factor reversal tests :

Commodity	2018		2019	
	Price	Expenditure	Price	Expenditure
A	8	80	10	120
B	10	120	12	96
C	5	40	5	50
D	4	56	3	69
E	20	100	25	150

25. Define Probability. Briefly explain different types of Probability.

**Turn over**

26. (i) What are the important uses of Vital Statistics ?  
(ii) What are the different measurements of Mortality ?

27. (i) Differentiate  $y = \frac{(x+1)(2x+1)}{(x-3)}$ .

(ii) Differentiate  $x^5 + e^x$ .

(2 × 10 = 20 marks)

C 21589-A

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ECO 4B 05—QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS—II

(2019 Admission onwards)

(Multiple Choice Questions for SDE Candidates)

**Time : 15 Minutes****Total No. of Questions : 20****Maximum : 20 Marks****INSTRUCTIONS TO THE CANDIDATE**

1. This Question Paper carries Multiple Choice Questions from 1 to 20.
2. The candidate should check that the question paper supplied to him/her contains all the 20 questions in serial order.
3. Each question is provided with choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and enter it in the main answer-book.
4. The MCQ question paper will be supplied after the completion of the descriptive examination.

## ECO 4B 05—QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS—II

(Multiple Choice Questions for SDE Candidates)

1. A good index number is one which satisfies :  
1) Unit test ; 2) Time reversal test and 3) Factor reversal test.  
Which of the following is correct :  
(A) 1 only. (B) 2 and 3.  
(C) 2 only. (D) 1, 2 and 3.
2. Which one of the following index numbers is based on Geometric Mean ?  
(A) Laspeyres index number. (B) Fischer's index number.  
(C) Paasches index number. (D) Bowley's index number.
3. The major purpose of price index is to measure change in the \_\_\_\_\_.  
(A) Standard of living. (B) Gold content of money.  
(C) Buying power of money. (D) Capacity to produce.
4. In consumer price index number weights are determining on the basis of \_\_\_\_\_.  
(A) Actual price of the index.  
(B) The consumption pattern of the class of population.  
(C) Actual consumption Expenditure.  
(D) Both price and consumption expenditure.
5. Laspeyres index measures change in :  
(A) Fixed market basket.  
(B) Current consumption.  
(C) Both fixed and current market basket.  
(D) None.
6. The consumer price index numbers is also known as \_\_\_\_\_.  
(A) Cost of living index number. (B) Price of living index.  
(C) Retail index. (D) All the above.

7. Purchasing power of money :
- (A) Price index  $\times$  100. (B) Price index / 100.  
(C) 100/Price index. (D) Real wage.
8. The method which is not used for estimating seasonal components of a time series :
- (A) Ratio to trend method. (B) Link relative method.  
(C) Method of simple average. (D) Method of least squares.
9. Paasches index number is based on :
- (A) Base year quantity. (B) Current year quantity.  
(C) Day year quantity. (D) None.
10. A function is continuous if :
- (A)  $\lim_{x \rightarrow a} f(x) = f(a)$  exist. (B)  $f(a)$  is a finite quantity.  
(C) Both (A) and (B). (D) None of the above.
11. The minimum of the function  $y = 4x^2 + 8$  is at :
- (A)  $x = 0$ . (B)  $x = 8$ .  
(C)  $x = 4$ . (D) None of these.
12. A function is said to be minimum :
- (A)  $f' = 0$  and  $f'' > 0$ . (B)  $f' = 0$  and  $f'' < 0$ .  
(C)  $f' > 0$  and  $f'' = 0$ . (D)  $f' < 0$  and  $f'' = 0$ .
13. When Revenue is maximum if  $R = 3000 - (3 - x)^2$  :
- (A) - 9. (B) 9.  
(C) - 3. (D) 3.
14. What is the probability that the first card extracted from well-shuffled standard deck of 52 playing cards is an ace ?
- (A)  $\frac{4}{52}$ . (B)  $\frac{2}{52}$ .  
(C)  $\frac{13}{52}$ . (D)  $\frac{3}{52}$ .

Turn over

15. A box contains 15 papers which are numbered from 1 to 15. A paper is drawn random. Find the probability that the number is :
- (A)  $\frac{7}{15}$ . (B)  $\frac{15}{7}$ .
- (C)  $\frac{6}{15}$ . (D)  $\frac{5}{158}$ .
16. A bag contains nine white, how many ways of drawing 2 white balls :
- (A) 40. (B) 32.
- (C) 36. (D) 38.
17. For an impossible event the value of probability will be :
- (A) Less than 1. (B) Greater than one.
- (C) 0. (D) 1.
18. The state which has the lowest IMR in India is :
- (A) Kerala. (B) Goa.
- (C) Madhya Pradesh. (D) Uttar Pradesh.
19. Vital statistics throws light on :
- (A) Changing pattern of the population during intercensal period.
- (B) Growth of population.
- (C) Fertility of races.
- (D) All the above.
20. The registration of vital statistics in India suffers from :
- (A) Incomplete reporting. (B) Incomplete coverage.
- (C) Lack of accuracy. (D) All the above.