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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 :

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

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

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

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

   (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 meant by Moving average method ?

8. What do you meant 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 th (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. W probability that it is black ?

$(10 \times 3 = $

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 $x = \dfrac{27}{p^3}$.

17. (i) Find $\dfrac{dy}{dx}$ if $y = (x - 4)^5 + \log 3x + 7e^{x-1}$.

    (ii) Find the value of $\dfrac{dy}{dx}$ if $2x^2 - 3xy + y^2 = 0$.

18. Define Trend. What are the various methods of measuring it ?

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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 $y = \dfrac{(x+1)(2x+1)}{(x-3)}$.

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

$(2 \times 10 = 2$