



(Pages : 4)

D - 2987

Reg. No. :

Name :

Third Semester B.A. Degree Examination, December 2017

First Degree Programme under CBCSS

ECONOMICS

Core Course - III

EC 1341 : Basic Tools for Economics - I

(2013 and 2014 Admn.)

Time : 3 Hours

Max. Marks : 80

SECTION - A

Answer **all** questions in **one** word to maximum of **two** sentences. **Each** question carries **one** mark.

1. What is a discrete variable ?
2. Define the Cofactor of an element.
3. What is Variable Cost ?
4. Write the equation of Price Elasticity of demand.
5. If $y(x) = x^{3/2}$. Find the value of y , when $x = 4$.
6. Define a set of natural numbers ($\mathbb{N}$) from 1 to 10.
7. If two lines are having same slope, separated by a distance. Then line 1 is _____ to line 2.
8. Give an example of a cubic equation.
9. What are exogenous variables ?
10. Give the formula for simple interest.

(10×1=10 Marks)

P.T.O.



SECTION - B

Answer **any eight** questions **not** exceeding **one** paragraph. **Each** question carries **two** marks.

11. If matrix $A = \begin{bmatrix} 4 & 5 \\ 8 & 10 \end{bmatrix}$, find $|A|$.
12. If the compound interest rates is 7% per annum, find the amount after two years for a principal sum of Rs. 30,000.
13. Distinguish between fixed cost and variable cost.
14. Define homogeneous functions.
15. Draw the graph of an exponential function.
16. What are the conditions for maxima and minima in a single equation ?
17. If $A = \frac{50}{15}$ and $B = \frac{55}{17}$. Which is greater, A or B ?
18. Find the 4th proportionate of 8, 20, 32.
19. State whether the following are finite or infinite set :
 - i) All whole numbers less than 10 crores
 - ii) Real Numbers
 - iii) Natural Numbers.
20. Explain the Euler's theorem.
21. Write any two properties of isoquant.
22. Comment on the slope of :
 - a) non-linear curve and
 - b) straight line.

(8×2=16 Marks)



SECTION - C

Answer **any six** questions **not** exceeding **120** words. Each question carries **four** marks.

23. If $A = \{1, 2, 3, \dots, 20\}$, $B = \{2, 4, 6, 8, \dots, 20\}$, $C = \{1, 3, 5, 7, \dots, 19\}$. Evaluate :

- i) $A \cup B \cup C$
- ii) $A \cap B \cap C$
- iii) $(A \cup B) \cap C$
- iv) $A - B$.

24. If $Q = 10x^2 + 30y^2 - 8kxy + 7$, find the partial derivative of Q with respect to x and y .

25. Evaluate :

- i) $\int (x + 1) dx$.
- ii) $\int_1^{10} (3x - 1) dx$.

26. State the conditions for maxima and minima.

27. If the Average Cost (AC) function is given by, $AC = 10x^2 - 50x + 20$, where x is the output. Find the level of output at which AC is minimum.

28. Find the ratio of the slopes if $x_1 = 45^\circ$ and $x_2 = 60^\circ$.

$$\begin{matrix} 1 & 2 & 1 \\ 3 & 2 & 3 \end{matrix}$$

29. Find A^{-1} , if $A = \begin{matrix} 1 & 2 & 1 \\ 3 & 2 & 3 \end{matrix}$.

$$\begin{matrix} 1 & 1 & 2 \end{matrix}$$

30. Ram took Rs. 5,000 from ICICI Bank at a compound rate interest of 10% per annum. Calculate the amount after 2 years.

31. If the demand law is $q = 10 - 2p$, find the elasticity of demand with respect to price at points where, $p = 1$, $p = 2$ and $p = 4$.
(6×4=24 Marks)



SECTION - D

Answer any two questions not exceeding four pages. Each question carries fifteen marks.

32. Solve the following equations using Cramer's rule.

$$3x + y + z = 3$$

$$2x + 2y + 5z = -1$$

$$x - 3y - 4z = 2$$

33. Draw graphs of the following :

i) $y = 2x^2 - 20x + 2$

ii) $q = 20 - 2p$

iii) $y = x + 3$.

34. Briefly explain the methods of constrained and unconstrained methods of optimization.

35. Factorize the following :

i) $x^2 + 5x + 6 = 0$

ii) $x^2 + x - 2 = 0$

iii) $x^2 + 7x + 12 = 0$

(15×2=30 Marks)