



M 7817

Reg. No. :

Name :

I Semester B.A. Degree (CCSS – Regular) Examination, November 2014
(2014 Admn.)

COMPLEMENTARY COURSE IN ECONOMICS

1C 01 ECO : Mathematics for Economic Analysis – I

Time: 3 Hours

Max. Marks : 40

PART – A

(Answer all questions. Each carries 1 mark.)

1. A function of the form $y = 3^x$ is called _____

2. $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3}$ is _____

3. If $R = 15x - 2x^2$, MR is _____

4. If $y = 3x^3 - 2x^2 + 6x$, $\frac{d^4y}{dx^4}$ is _____ (1×4=4)

PART – B

(Answer any 7 questions. Each carries 2 marks.)

5. Define continuity of a function at a point.

6. Differentiate convex and concave functions.

7. The demand for a monopolist is $p = 15 - 2x$ and cost function is $C(x) = x^2 + 2x$.
Find MR and AC.

8. Find d^2z if $z = 2x^3 + 3y^2$.

P.T.O.



9. Criterion for maximum value of a function.
10. Find the differential coefficient of $x^2 + y^2 - 9$.
11. If $y = e^{2x}$ find $\frac{d^2y}{dx^2}$.
12. The cost function is $\pi = a + bq + cq^2$, define MC and AC.
13. L' Hospital's rule.
14. When a function $z = f(x, y)$ is minimum? (7×2=14)

PART - C

(Answer any 4 questions. Each carries 3 marks.)

15. The demand law for sugar is $P = 15 - \frac{1}{5}x$. Find MR function. Represent it graphically when is MR zero?
16. Find the limit of the function as n tends to ∞ , $\frac{n^2 + 2}{n^2 + 3}$.
17. If $y = \frac{1}{x^2}$, ST $x^4y_2 + x^3y_1 - 4 = 0$.
18. If MR is 25 and elasticity of demand with respect to price is 2, find AR.
19. Differentiate $\frac{1}{\sqrt{3+2x}}$.
20. Show that the function $x^2 + 4x - 2$ is continuous for $x = 3$. (4×3=12)



Reg. No. :

PART - D

(Answer any 2 questions. Each carries 5 marks.)

- 21. Explain the application of partial and total derivatives in Economics.
- 22. A radio manufacturer produces x sets per week at a total cost of Rs. $x^2 + 78x + 2500$. The demand function is $8x = 600 - P$ where P is the price per unit. When is the net revenue maximum? What is the price per set then?
- 23. For the production function $16y^2 - y + 2(K - 4)^2 + 4(L - 5)^2 - 80 = 0$, find the marginal productivities.
- 24. Verify Euler's theorem for the function $u = 8x^3 + 2x^2y + 3xy^2 + y^3$. (2x5=10)

1. A function of the form $y = 3^x$ is called _____

2. $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3}$ is _____

3. If $R = 15x - 2x^2$, MR is _____

4. If $y = 3x^3 - 2x^2 + 5x$, $\frac{d^2y}{dx^2}$ is _____ (1x4=4)

PART - B

(Answer any 7 questions. Each carries 2 marks.)

- 5. Define continuity of a function at a point.
- 6. Differentiate convex and concave functions.
- 7. The demand for a monopolist is $p = 15 - 2x$ and cost function is $C(x) = x^2 + 2x$. Find MR and AC.
- 8. Find $\frac{dz}{dx}$ if $z = 2x^3 + 3y^2$.