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GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS, PONDA GOA
B.COM. CBCS (SEMESTER- II) EXAMINATION, JULY 2021

COMMERCIAL ARITHMETIC

Duration: 2 hours **Marks: 40**

Q.I Attempt ANY 5 out of 8 from the following: (5x2 = 10)

1) Show that Points (7,8), (-5,2) and (3,6) are collinear.

2) Find the equation of line passing through the points A= (2, -5) and B (4,3).

3) If $f(x) = x^2 + 1$, find x if $f(x+1) = f(x+2)$.

4) Evaluate the $\lim_{x \to 3} \frac{(x^2 - 9)}{(x^2 - x - 6)}$

5) Differentiate with respect to x if $y = 3x^2 + 5\log x - 2e^x - 8$.

6) The total cost of producing x items by a firm is $C = 400 + 0.02x + 0.0001x^2$. Find marginal cost function and its value at x=100.

7) Find the total revenue function, if the marginal revenue function is given by

   $MR=5 - 3x^2 - 4x^3$.

8) The sum of two numbers is 40 and their difference is 4. What is the ratio between the numbers?

Q.II Attempt ANY 2 out of 3 from the following: (2x5 = 10)

1) Show that (4,7), (6,5) and (2,1) are the vertices of right angled triangle.

2) Examine the continuity at x=4 of the function

   $f(x) = (x^2-16)/(x-4)$ for $x \neq 4$

   $f(4) = 8$

3) Find the equation of line having y intercept 3 and parallel to 2x-3y-7=0.

Q.III Attempt ANY 4 out of 6 from the following: (4x5 = 20)

1) Differentiate w.r.t. x

i) $y = x^2 + \sqrt{x}$ ii) $y = (x^2 + 3) / (x - 1)$

2) Solve the following LPP by graphical method.

Max $Z = 23\ x_1 + 35\ x_2$ such that

$4x_1 + 3x_2 \leq 40$

$2x_1 + 5x_2 \leq 55$

$x_1, x_2 \geq 0.$

3) Given $f(x) = 100 + 10x - 2x^2$. For what value of x, f(x) is minimum?

4) Evaluate $\int_1^3 (x+2)(x-3)dx$

5) Marginal demand function MD=3-2p, Marginal supply function MS=2p+1, with D and S at p=3 as 16 and 8 respectively, find the demand function and supply function. Also find their values at p=2 and p=3.

6) If $u = x^3 + x^2y + y^3$, prove that

$$x\frac{\delta u}{\delta x} + y\frac{\delta u}{\delta y} = 3u.$$

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