

Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND
ECONOMICS PONDA GOA
B.COM. CBCS (SEMESTER II) SUPPLEMENTARY EXAMINATION,
AUGUST 2021

COMMERCIAL ARITHMETIC

Duration: 2 hours

Marks: 40

Q.I Attempt ANY 5 out of 8 from the following: (5 x 2 = 10)

- 1) Check whether the given points (7,8), (-5,2) and (3,6) are collinear or not.
- 2) Find the equation of line passing through the points A=(1,5) and B(4,-3).
- 3) If $f(x) = x^2 - 2$, find x if $f(x+1) = f(x+2)$.
- 4) Evaluate the limit $\lim_{x \rightarrow 3} \frac{(x^2 - 9)}{(x^2 - x - 6)}$
- 5) Differentiate with respect to x if y with respect to x if $y = 6x^2 + \log x - 5e^x$.
- 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: (2 x 5 = 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 5 and parallel to $2x-3y-7=0$.

Q.III Attempt ANY 4 out of 6 from the following: (4 x 5 = 20)

- 1) Differentiate w.r.t. x

i) $y = 3x^2 + \sqrt{x}$ ii) $y = (x^3 + 4) / (x-1)$

- 2) Solve the following LPP by graphical method.

Max $Z = 23x_1 + 35x_2$ 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 $\int_0^2 (x + 2)(x - 3) dx$
- 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

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

XXXXXXXXXXXXXXXXXXXX