

SARASWAT VIDYALAYA'S
SRIDORA CACULO COLLEGE OF COMMERCE & MANAGEMENT STUDIES
KHORLIM, MAPUSA, GOA

F.Y.B.COM. SEMESTER END EXAMINATION, JULY '21
REGULAR SEMESTER II (Online mode)

Subject:- COMMERCIAL ARITHMETIC – II (CC-08, Course Code: UCAC102)
(CBCS – Revised Course)

M.Marks:- 40

Duration:- 2 hrs.

- Instructions:-
1. Attempt both the questions.
 2. Attempt each question on a new page and sub-questions together.
 3. Internal choice is available.
 4. Figures to the right indicate full marks.

Q.I. Answer **any five** from the following: (2x5 = 10)

1. Differentiate the function w.r.t. x: $e^{-x} + 2^x + x^2 + \frac{1}{2}x^2 - \sqrt{x} - \sqrt{2} + 2$
2. Monthly income of three workers A, B, and C are in the ratio 3:5:8. If the total of monthly income of all three is Rs. 51,200/-. Find monthly income of each of them.
3. If $Z = x^4 + 4x^2y^2 + y^4$, Find Z_{xx}, Z_{yy}, Z_{xy} and Z_{yx}
4. Prove that the points (2, 3), (5, 4) and (1, 0) are the vertices of an isosceles triangle.
5. If $\int_{-1}^1 (3x^2 + 2kx + c)dx = 4$, find c.
6. Show that the points (3,0), (2,3) and (-1,12) are co-linear
7. If $(x) = \frac{8x-3}{5x-8}$, show that $f(f(x)) = x$.
8. The supply function for a commodity is $p = 3x^2 + 5$. Find the Producer's Surplus when p= 80

Q.II. Answer **any six** from the following: (5x6 = 30)

- a) If A=(3,-2) and B=(5,4), Find the ratio in which the Y-axis divided seg AB. Is the division internal or external? Find the co-ordinates of point of division.
- b) The Average Cost function is given by $AC = x + 5 + \frac{400}{x}$ where x is the number of unit produced. Find the Cost. Also find Cost when Marginal cost is equal to Average cost.
- c) The Marginal profit of a firm is given by, $MP = 3x^2 + 2x - 7$. We are given that, the firm suffers a loss of Rs. 100/- when only 10 items are produced, find the profit of the firm when 20 items are produced.

- d) The Supply function for a commodity when its price p is given by
 $p = 108 - \frac{3}{5}s$, find the price elasticity of supply when price is 12 units.
- e) Evaluate $\lim_{x \rightarrow 0} \frac{\sqrt{1+2x} - \sqrt{1-3x}}{x}$
- f) On the purchase of 500 calculators, a manufacturing company allows $7\frac{1}{2}\%$ trade discount and further $2\frac{2}{5}\%$ cash discount to a retailer. If a calculator is marked for R. 350, what price a retailer would be paying for a single calculator?
- g) If the supply function and demand function for a commodity are respectively:
 $p = 3x^2 + 8x - 7$ and $p = 10 - 6x^2$.
 Find the Producer's surplus at $x = 1$.
- h) A firm has total revenue and total cost function as, $R = 100x - x^2$ and
 $C = x^3 - \frac{57}{2}x^2$, where x is the output. Determine the maximum profit.

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