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GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS

FARMAGUDI, PONDA – GOA

B.Com. UGC - CCFUP (SEMESTER - I) EXAMINATION OCTOBER/NOVEMBER 2024

COM-142 BUSINESS MATHEMATICS - I

Time: 1 Hour **Marks: 20**

Instructions: i) All questions are compulsory. However there is internal choice for Q 3 B), Q 4 B) and Q 5 B)
ii) Figures to the right indicate full marks.
iii) Use of non programmable calculator is allowed.

Q 1. Answer each of the following questions:

i) Are the numbers 10, 15, 14, 21 in proportion? Why? (1 m)[CO1][BL1]

ii) Calculate simple interest on ₹10824 for 2 years at the rate of 7.75% per annum. (1 m)[CO2][BL1]

iii) If A = {x/x is a letter in the word MATHEMATICS} then list the elements of A. (1 m)[CO3][BL1]

iv) If function f is such that f '(a) = 0 and f "(a) $<$ 0 then state whether the function f has a maxima or a minima at x = a. (1 m)[CO4][BL1]

Q 2 A) If ₹ 3000 is invested at an interest rate of 9% compounded annually, what will be the total amount after 1 year? (2 m)[CO2][BL1]

Q 2 B) If f(x) = 7x – 5 then what is the value of f(x + 3) ? (2 m)[CO3][BL1]

Q 3 A) If 42 is added to 40% of a number the result is the number itself. Find the number. (2 m)[CO1][BL2]

Q 3 B) Find $\frac{dy}{dx}$ if $y = (x^2 - 3x + 2)^3$ (2 m)[CO4][BL2]

OR

Q 3 C) Find $\frac{dy}{dx}$ if $y = 3^{2x^2 - 1}$ (2 m)[CO4][BL2]

Q 4 A) If X = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10} , A = {1, 4, 6} and B = {2, 3, 4, 5, 7} find
i) B – A ii) (A ∪ B)' (2 m)[CO3][BL2]

Q 4 B) Compute the definite integral $\int_1^3 (2x + 1)dx$ (2 m)[CO4][BL2]

OR

Q 4 C) Find $\int y\,dx$ if $y = \frac{x^4 - x}{x}$ (2 m)[CO4][BL2]

Q 5 A) Find the value of x for which $f(x) = x^3 - 12x + 5$ is decreasing. (2 m)[CO4][BL3]

Q 5 B) A class has 25 students. If 15 of the students are girls, what is the ratio of boys to girls in the class? (2 m)[CO1][BL3]

OR

Q 5 C) A, B, C are three quantities such that A : B = 2 : 3 and B : C = 4 : 7. Find A : B : C. (2 m)[CO1][BL3]