

M.E.S. VASANT JOSHI COLLEGE OF ARTS AND COMMERCE, ZUARINAGAR – GOA
B.Com. (NEP) I Semester End Regular/Repeat Assessment, November, 2024
SEC –BUSINESS MATHEMATICS I (COM-142)

- Instructions: i) *All questions are compulsory.*
ii) *Figures to the right indicate full marks.*
iii) *Use of simple (non-scientific) calculator is allowed.*

Time: 01 Hour	Total Marks: 20
Q 1. Answer each of the following:	(4×1=4 Marks)
a. Write the Sub-duplicate ratio of the given ratios. (i) 100 : 64 (ii) 625 : 121	
b. Define Power set.	
c. State the formula for $\int a^x dx$, $a > 0$.	
d. Define Even function.	
Q 2 A. Find the amount for the ordinary annuity with periodic payment as Rs. 2000, at the rate of interest 12% per annum, for 2 years. The period of payments is yearly.	(2 marks)
Q 2 B. Find the roots of the given quadratic equation using factorization method ; $x^2 + 6x + 8 = 0$	(2 marks)
Q 3 A. Rs. 2000 is invested at 6% Simple Interest per year. Find the amount received after 4 months.	(2 Marks)
Q 3 B. Find $\int (x - 2)(x + 7) dx$	(2 Marks)
OR	
Q 3 C. Find $\int_0^1 (3x^2 - 2x + 7) dx$	(2 Marks)
Q 4 A. Kartik won a lottery of Rs. 90,000 , 40% of this amount he invested in mutual fund, 22% in fixed deposits, and remaining amount he donated to a charitable trust. Find the amount invested by him in fixed deposits and the amount donated to the charitable trust.	(2 Marks)
Q 4 B. $X = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ $A = \{1, 3, 5, 8, 9\}$ $B = \{2, 3, 4, 6, 8, 9, 10\}$ $C = \{1, 2, 5, 7, 8, 9\}$ Verify that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$	(2 Marks)
OR	
Q 4 C. If $f(x) = x^2 + 4$ and $g(x) = 2x - 1$ then find $g \circ f(x)$ (i.e. g composite f of x)	(2 Marks)
Q 5 A. Find the possible extreme points of $f(x) = 2x^3 - 15x^2 + 36x + 5$	(2 Marks)
Q 5 B. Find the derivative of $f(x) = (2x - 5)^2$	(2 Marks)
OR	
Q 5 C) Find the derivative of $f(x) = x^3 + e^x + 5(3^x) + 9$	(2 Marks)
