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Daffodil International University

Faculty of Business & Entrepreneurship
Department of Business Administration
Program: BBA

Semester: Summer-2025
Time: 1 Hour and 30 Minutes
Course Code: 0541-122
Section: All

Examination: Mid-term
Full Marks: 25
Course Title: Business Mathematics
Teachers' Initial: SAS, AA

Answer the followings questions:

1.	(a)	Explain annuity, compound interest and amortization.	3	CLO 1 Level-2
	(b)	Interpret the property of equilateral triangle and right-angled triangle.	2	
2.	(a)	A landowner wants to make a small triangular garden. The three corners of the garden will be at points $(3,6)$, $(x,0)$, and $(6,-4)$ on a map. The garden must have an area of exactly 29 square meters. Identify the value of x that makes the area of this triangle 29 square meters.	2.5	CLO 2 Level-3
	(b)	Michael opens a savings account and deposits \$5,000. After 2 years, the total amount in his account grows to \$5,600. Assuming the bank pays simple interest, choose the annual interest rate offered by the bank.	2.5	
3.	(a)	Solve the following equation: $\log_x 2 + \log_x 9 + \log_x 12 = 3$	2.5	CLO 2 Level-3
	(b)	If $\log\left(\frac{x+y}{9}\right) = \frac{1}{2}(\log x + \log y)$ then show that $\frac{x}{y} + \frac{y}{x} = 79$	2.5	
4.	(a)	Identify the number of months it will take at 9 percent interest compounded semi-annually for \$5,000 to grow to \$10,000.	2.5	CLO 2 Level-3
	(b)	A hospital wants to set up a medical equipment replacement fund by depositing a fixed amount at the end of every three months into a reserve account. The goal is to accumulate \$120,000 in 7 years. If the fund earns 7% interest compounded quarterly, select the value should be transferred in each deposit.	2.5	
5.	(a)	Identify the value of k that the points $\left(2, \frac{3}{2}\right)$, $(-3, -\frac{7}{2})$ and $(k, \frac{9}{2})$ are on the same line.	2	CLO 2 Level-3
	(b)	Examine that the points $A(6,6)$, $B(2,3)$ and $C(4,7)$ are the vertices of right-angled triangle or not.	3	CLO 3 Level-4

Good Luck!