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Daffodil International University

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

Semester: Fall-2026
Time: 1 Hour and 30 Minutes
Course Code: 0541-122
Section: 72 batch (all sec)

Examination: Mid-term
Full Marks: 25
Course Title: Business Mathematics
Teachers' Initial: MP, DSAS, AA, Dr. Sushanta, Dr. Al Amin

Answer the following questions

1.	(a)	Indicate the quadrant containing the point (-3, 4) and also locate the point in the plane.	2	CLO 1 Level-2
	(b)	Interpret the characteristics of Simple interest, Compound interest and Ordinary Annuities: Sinking Fund.	3	
2.	(a)	Rafiq invests $6,500 in a fixed deposit account that earns 8.5% interest per year. He wants his investment to grow to $7,540. Calculate the number of months it take for his investment to reach $7,540.	2.5	CLO 2 Level-3
	(b)	A young entrepreneur wants to invest in a long-term investment account. She wants her investment to triple in value over 9.5 years. Compute the interest rate must the bank offer for her investment to triple if the interest is compounded semiannually.	2.5	
3.	(a)	If $\log_2 x + \log_4 x + \log_{16} x = \frac{21}{4}$, then find the value of x.	2.5	CLO 2 Level-3
	(b)	Without log table, evaluate: $\log\frac{384}{5} + \log\frac{81}{32} + 3\log\frac{5}{3} - \log 9$	2.5	
4.	(a)	A delivery company has two warehouse locations represented by the coordinates A(3, a) and B(9, 6) on a map. The distance between the two warehouses is 10 units. Estimate the value of a.	2	CLO 2 Level-3
	(b)	ABC Garments Ltd. plans to deposit an equal amount of money into a sinking fund at the end of every three months to accumulate $1,50,000 funds for purchasing new production equipment 4 years from now. Calculate the amount to be deposited at the end of each quarter if the fund earns interest at 10% compounded quarterly. Also, determine the total deposited amount and the total interest earned over the investment period.	3	

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5.	(a)	City planner is designing a flower garden. The three corners of the garden are located at the points A(2, 4), B(8,−4), and C(x, 9) on a city map, where the coordinates are measured in meters. The garden must have an area of exactly 15 square meters. Determine the value/s of x that make the area of the triangle equal to 15 square meters.	2.5	CLO 2 Level-3
	(b)	A triangular garden has three corner points at A(2, 3), B(8, 3) and C(5, $3 + 3\sqrt{3}$). Analyze with explanation whether these three points form the vertices of an equilateral triangle or not.	2.5	CLO 3 Level-4