

# Daffodil International University

Faculty of Business & Entrepreneurship

Department of Business Administration

Program: BBA

Semester: Spring-2026

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, Jaher

## Answer the followings questions

1.	(a)	Define collinearity of three points.	1	CLO 1 Level-1
	(b)	Plot $x$ and $y$ axis and locate the point $(3, -2)$ .	1	CLO 1 Level-2
	(c)	A real estate company is planning a triangular commercial plot. The three boundary points of the land on a coordinate map (measured in meters) are $(3,6)$ , $(x, 2)$ , and $(8, -4)$ . For investment purposes, the company requires the land area to be exactly 20 square meters. Calculate the value of $x$ that makes the area of this triangle exactly equal to 20 square meters.	3	CLO 2 Level-3
2.	(a)	Interpret the characteristics of equilateral triangle and isosceles triangle.	1.5	CLO 1 Level-2
	(b)	A company is organizing a display section for premium products on the showroom floor. The four corners of the display are $P(3,2)$ , $Q(7,2)$ , $R(7,6)$ and $S(3,6)$ . Analyze whether the display portion forms a square or a rhombus or anything else.	3.5	CLO 3 Level-4
3.	(a)	Compute the value of $\frac{\log 216}{1 + \frac{1}{2} \log\left(\frac{36}{4}\right) + \frac{1}{3} \log\left(\frac{1}{125}\right)}$	2.5	CLO 2 Level-3
	(b)	Solve the equation, $\log_{10}(x - 3) + \log_{10} x = 1$	2.5	
4.	(a)	Ms. Sultana deposits Tk. 50,000 in a savings account at an annual interest rate of 10% compounded quarterly. Identify the number of months will take to grow the amount to Tk. 60,500.	2.5	CLO 2 Level-3

	(b)	Solve the value for $k$ that the points $(2,3)$ , $(-4, -6)$ and $(k, 12)$ are on the same line.	2.5	
5.	(a)	Bright Tech Ltd. plans to replace its delivery vehicles 6 years from now. To do this, the company wants to accumulate Tk. 150,000 in a reserve fund. The company will deposit an equal amount at the end of each 6-month period, and the fund earns 10% interest compounded semiannually. Calculate the amount should Bright Tech deposit at the end of each period.	2.5	CLO 2 Level-3
	(b)	Mr. Rahman opened a small electronics shop in his town. To expand his business before the festive season, he borrowed Tk. 120000 from a local cooperative bank. The bank agreed to charge simple interest on the loan. After 3 years, Mr. Rahman repaid the loan in full and the total amount he paid back was Tk. 14,1600. Determine the annual rate of simple interest charged by the bank.	2.5	