



Daffodil International University
Faculty of Science & Information Technology
Department of Information Technology & Management (ITM)
Midterm Examination, Fall 2024
Course Code: MATH101, Course Title: Business Mathematics
Section: A (10th Batch) Teacher: BCD

Time: 01:30 Hrs

Marks: 25

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1	a)	What do you mean by factor and multiplier of number? Find all the prime factors of 1680 using a tree diagram.	2+3=5	CLO1 (1)
	b)	What do you mean by conjugate of a complex number? Find the polar form of the complex number $Z = 5 - 5i$.	1+2=3	
2	a)	At 10% compounded quarterly, how many years will it take for \$5000 to grow to \$15000?	4	CLO2 (5)
	b)	A \$ 70,000 condominium is to be purchased by paying \$ 10,000 in cash and a \$60,000 mortgage for 30 years at 9.75 percent compounded monthly. (a) Find the monthly payment of the mortgage. (b) What will be total amount of the interest paid?	4+1=5	
3		An engineering company produces two kinds of devices: smart phone and smart watch. Each smart phone sells for \$30 and cost \$25 to make, while each smart watch sells \$20 and cost \$17 to make. Each smart phone must be processed on two machines: smart phone requires 4 hours on machine A and 2 hours on machine B, whereas smart watch requires 5 hours on machine A and 2 hours on machine B. In the next week, machine A will be free for no more than 40 hours and machine B for no more than 15 hours. Determine the number of smart phone and smart watch to be made in the next week for the company to maximize its profits and what will be the total profit?	8	CLO2 (2)