Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date: 10-10-2025 **Time:** 02.00pm to 03.30pm

School: SOC & SOIS,SOCSE,SOE	**Program:** COMMON TO ALL	
Course Code: MAT3043	**Course Name:** Financial Mathematics (Open Elective)	
Semester: III/V/VII/IX	**Max Marks**: 50	**Weightage**: 25%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**14**	**36**			

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	Find the value of y in 36 ÷2 + y x 3 – 22 = 8.	**2 Marks**	**L1**	**CO1**
2	The selling price of a three-pack of tennis balls is $3.95, and the markup is 25, of selling price. Find the markup.	**2 Marks**	**L1**	**CO1**
3	Find the interest on a loan of $14,680 for 8 months at 8.5%.	**2 Marks**	**L1**	**CO2**
4	Find the future value of $1100, compounding at the rate of 6% annually, after 10 years.	**2 Marks**	**L1**	**CO2**
5	Define Effective Annual Rate.	**2 Marks**	**L1**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	**a.**	Find the list price of a Bunn 10-cup Generation home brewer having a series discount of 10/30/20 and a net cost of $60.48.	**2 Marks**	**L2**	**CO 1**
	b.	Pam Gondola has a choice of two suppliers of fiber optics for her business. Tyler Suppliers offers a 20/10/25 discount on a list price of $5.70 per unit. Irving Optics offers a 30/20 discount on a list price of $5.40 per unit. (i) Which supplier gives her the lower price? (ii) Find the amount saved if she buys 12,500 units from the lower-priced supplier	**8 Marks**		
		Or			
7.	**a.**	The retail price of a 50-inch portable basketball system is $549.99. The retailer has operating expenses of 29.5%, and wants a 5.5%, profit, both based on cost, on this item. First find the total percent of markup on cost; then find cost and markup.	**10 Marks**	**L2**	**CO 1**
8.	**a.**	Brianna McGruder and Tanya Zoban own Extreme Sports, Inc., whose value is $120,000 today assuming normal growth. However, the partners believe the value will grow at 15%, per year for the next four years. They want to take this rapid growth into consideration when valuing the business for a potential sale. (i) Find the future value of the business in 4 years. (ii) Estimate the value of the retail store by finding the present value of the amount found in part (i) at 6%, compounded quarterly.	**10 Marks**	**L2**	**CO 2**
		Or			
9.	**a.**	Regina Foster wants to compare simple interest to compound interest on a $2000 investment. (i) Find the interest if funds earn 6%, simple interest for 1 year. (ii) Find the interest if funds earn 6%, interest compounded every 6 months for 1 year. (iii) Find the difference between the two. (iv) Find the effective rate for both.	**10 Marks**	**L2**	**CO 2**
10.	**a.**	If the nominal rate of interest stated is 6%, what would the effective interest rate be if the compounding occurs annually, semi-annually, quarterly, monthly, weekly, and daily?	**10 Marks**	**L2**	**CO 2**

		Or			
11.	**a.**	An investment managed by Bank of America pays 7%, interest per year compounded semi-annually. Given an initial deposit of $4500, (i) find the compound amount after 5 years, and (ii) find the compound interest.	**6 Marks**	**L2**	**CO 2**
	b.	You expect to receive $10,000 as a bonus after 5 years on the job. You have calculated the present value of this bonus and the answer is $8000. What discount rate did you use in your calculation?	**4 Marks**		

12.	**a.**	You decide to put $12,000 in a money market fund that pays interest at the annual rate of 8.4%, compounding it monthly. You plan to take the money out after one year and pay the income tax on the interest earned. You are in the 15% tax bracket. Find the total amount available to you after taxes.	**10 Marks**	**L2**	**CO 2**
		Or			
13.	**a.**	If you invest $2,000 at $7\frac{1}{4}\%$ interest for $7\frac{1}{2}$ years, how much would you accumulate if the compounding occurs annually; semi-annually; quarterly; monthly; weekly; daily?	**10 Marks**	**L2**	**CO 2**