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ID (last 3 digit) Batch NFC

Daffodil International University

Faculty of Science & Information Technology
Department of Information Technology and Management
Midterm Examination, Summer 2025
Course Code: **Introduction to Finance; Course Title: ITM- 307**
Time: 1:30 Hr. Course Teacher: NI Marks: 25

1	**Scenario:** Batul and A-had-i have started learning about Finance. A-had-i was discussing buying a house in Kapverdy and some other financial decisions with Batul, But to confuse A-had-i, Batul explains lots of misinformation A-had-i . So A-had-i came to you for better clarity on the matter to understand the topics. *(Total-10)*			
	a)	**Define** the agency problem and **list down** how to solve the agency problem	[2]	CO- 1 *Level-5*
	b)	**Explain the** *dividend decisions* from the Managerial Function of the Financial Manager.	[2]	
	c)	**Explain** the principles of Risk and return with an example	[2]	
	d)	**Explain** the difference between Profit maximazation wealth maximization	[2]	
	e)	**Recommend** with reasons which financial source should A-had-i use for buying a house. [note: *use the concept of Internal and external funds*]	[2]	
2.	**Solve** financial decisions dilimas *(Total-15)*			
	a)	Find the future value of $ 524,550 at 13 percent for 21 years and 6 months Find the future value of $ 500,700 at 11 percent compounded monthly for 21 years **Requirement: Predict** how much return A-had-i can accumalatal form both investments .	[5]	CLO- 4 *Level- 5*
	c)	***Option 1***: in installment purchasing a house, given that the interest rate is 17% compounded quarterly at the beginning of the period	[5]	

Annual payment Number	1	2	3	4	5.
Payment Amount	$95,000	$ 65,500	000	$23,600	$54,000

Option 2: down payment of $ 220,500.

Explain which option should A-had-i take?

	d)	A-had-i to buy a BMW on 2040 . He will start saving from 2027. He wants to accumulate 95,50,000. What should be the annual installment amount at 11% annual interest rate compounded semi-annually in an annuity due.	[2.5]	
	e)	A-had-i will receive 75000 every year for the next 12 years for selling software or receive full BDT 500000 cash after 10 years. Current bank interest is 16% compounded annually. Which one will A-had-i take?	[2.5]	

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$$= \frac{CF_t}{(1+r)^t} \qquad FV_t = CF_0(1+r)^t \qquad = \sum_{t=0}^{n} \frac{CF_t}{(1+r)^t} \qquad = \sum_{t=0}^{n} CF_t(1+r)^{n-t}$$

$$= PMT\left[\frac{1-(1+r)^{-t}}{r}\right] \qquad FVA_t = PMT\left[\frac{(1+r)^t - 1}{r}\right] \qquad r = \frac{r_{nom}}{m} \qquad = \left(1+\frac{r_{nom}}{m}\right)^{m} - 1$$

$$= \frac{CF_t}{\left(1+\frac{r_{nom}}{m}\right)^{mt}} \qquad = PMT\left[\frac{\left(1+\frac{r_{nom}}{m}\right)^{mt} - 1}{\frac{r_{nom}}{m}}\right] \qquad = PMT\left[\frac{1-\left(1+\frac{r_{nom}}{m}\right)^{-mt}}{\frac{r_{nom}}{m}}\right]$$