

This examination paper must be returned intact. No part may be removed from the examination room.

Family name:
Other names:
Student ID:



AFIN 253
Financial Management
MID-SEMESTER TEST

Time allowed: 1 hour.

Instructions

1. Writing is not permitted in reading time. All pens, pencils and highlighters must be on your desk.
2. There are **15** multiple choice questions worth 1 mark each. Select the 'one best' answer choice for each question. Answers to these must be recorded on a red-coloured General Purpose Answer Sheet which will be marked by a computer. Please make sure your name and SID is on this sheet. Answers on this test question paper will not be marked.
3. **Materials Permitted**
 - A non-programmable calculator without text storage capability is permitted. Financial calculators may be used.
 - Dictionaries may not be used.
 - Mobile phones must be turned off and left at the front of the examination room.
 - Bags must be left at the front of the room.

Select the one best answer choice for each question.

Question 1: A stock pays annual dividends. It just paid a dividend of \$3. The growth rate in the dividend is 4% pa. You estimate that the stock's required return is 10% pa. Both the discount rate and growth rate are given as effective annual rates. Using the dividend discount model, what will be the share price?

- (a) 30
- (b) 31.16
- (c) 31.2
- (d) 50
- (e) 52**

Question 2: A project's NPV is negative. Select the most correct statement.

- (a) The project should be accepted.
- (b) The project's IRR is less than its required return.**
- (c) The project's IRR is more than its required return.
- (d) The project's IRR is equal to its required return.
- (e) The project's Profitability Index should be greater than 1.

Question 3: A four year bond has a face value of \$100, a yield of 6% and a fixed coupon rate of 12%, paid semi-annually. What is its price?

- (a) 67.2123
- (b) 78.9409
- (c) 81.7042
- (d) 111.1513
- (e) 121.0591**

The following data refers to the next 2 questions.

Question data: A stock is expected to pay the following dividends:

Cash Flows of a Stock						
Time (yrs)	0	1	2	3	4	...
Dividend	8	8	8	20	8	...

After year 4, the dividend will grow in perpetuity at 4% pa. The required return on the stock is 10% pa. Both the growth rate and required return are given as effective annual rates.

Question 4: What is the current price of the stock?

- (a) 170.24
- (b) 141.09
- (c) 137.09**
- (d) 131.62
- (e) 127.98

Question 5: What will be the price of the stock in 5 years ($t = 5$), just after the dividend at that time has been paid?

- (a) 166.79
- (b) 149.98
- (c) 144.21**
- (d) 138.67
- (e) 128.21

Question 6: The following is the Dividend Discount Model used to price stocks:

$$P_0 = \frac{D_1}{r - g}$$

Which of the following statements about the Dividend Discount Model is **incorrect**?

- (a) The dividend yield is equal to $(r - g)$.
- (b) The dividend yield is equal to (D_1/P_0) .
- (c) The total return of the stock is equal to (r) .
- (d) The total return of the stock is equal to $\left(\frac{D_1 + P_0 \cdot g}{P_0}\right)$.
- (e) The total return of the stock is equal to $(r + g)$.**

Question 7: You just signed up for a 30 year fully amortising mortgage with monthly payments of \$2,000 per month. The interest rate is 9% pa which is not expected to change.

How much did you borrow? After 5 years, how much will be owing on the mortgage? The interest rate is still 9% and is not expected to change.

- (a) 246,567.70, 93,351.63
- (b) 246,567.70, 235,741.91
- (c) 248,563.73, 96,346.75
- (d) 248,563.73, 238,323.24**
- (e) 256,580.38, 245,314.97

Question 8: Find the CFFA over the 2011 fiscal year using the following :

Candy's Corp Income Statement for period ending 30 June 2011		Candy's Corp Balance Sheet as at 30 June		
			2011	2010
Net sales	200	Current assets	220	180
COGS	60	PPE		
Depreciation	20	Cost	300	340
EBIT	120	Accum. depr	60	40
Interest expense	10	Carrying amount	240	300
Taxable income	110			
Taxes	33	Total assets	460	480
Net income	77			
		Current liabilities	175	190
		Non-current L	135	130
		Owners Equity	150	160
		Total L and OE	460	480

Note: all figures are given in millions of dollars (\$m).

- (a) 242
- (b) 182
- (c) 112
- (d) 92**
- (e) 52

The following data relates to the next two questions.

Time (Years)	Project Cash Flows (\$)
0	-400
1	200
2	250

The required return on the project is 10%, given as an effective annual rate.

Question 9: What is the Profitability Index (PI) of the project? Assume that the cash flows shown in the table are paid all at once at the given point in time.

(a) 0.9711

(b) 1.1750

(c) 1.3063

(d) 1.5537

(e) 1.8800

Question 10: What is the payback period of the project in years? For this question, assume that the cash flows shown in the table are received smoothly over the year. So the \$250 at time 2 is actually earned smoothly from $t=1$ to $t=2$.

(a) 0.20

(b) 1.20

(c) 1.80

(d) 2.25

(e) 2.80

Question 11: Why is Capital Expenditure (CapEx) subtracted in the below version of the Cash Flow From Assets formula?

$$CFFA = NI + Depr - CapEx - \uparrow NWC + IntExp$$

- (a) CapEx is added in the Net Income (NI) equation so it needs subtracting in the CFFA equation.
- (b) CapEx is a financing cash flow that needs to be ignored. Therefore it should be subtracted.
- (c) CapEx is a fictitious expense made up by accountants, so it needs subtracting.
- (d) CapEx is subtracted to account for the cash spent on capital assets.**
- (e) CapEx is subtracted because it's too hard to predict, therefore we exclude it.

Question 12: A furniture distributor offers credit to its customers. Customers are given 25 days to pay for their goods, but if they pay immediately they will get a 1% discount. What is the effective interest rate implicit in the discount being offered? Assume 365 days in a year and that all customers pay either immediately or on the 25th day. All rates given below are effective annual rates.

- (a) 0.0004
- (b) 0.1301
- (c) 0.1365
- (d) 0.1460
- (e) 0.1580**

Question 13: Which one of the following bonds is trading at a discount?

- (a) a ten-year bond with a \$4000 face value whose yield to maturity is 6.0% and coupon rate is 6.5% paid semi-annually.
- (b) a 6-year bond with a principal of \$40,000 and a price of \$45,000.
- (c) a 15-year bond with a \$10,000 face value whose yield to maturity is 8.0% and coupon rate is 10.0% paid semi-annually.
- (d) a two-year bond with a \$50,000 face value whose yield to maturity is 5.2% and coupon rate is 5.2% paid semi-annually.
- (e) None of the above bonds are discount bonds.**

Question 14: A firm wishes to raise \$20 million now. They will issue 8% pa semi-annual coupon bonds that will mature in 5 years and have a face value of \$100 each. Bond yields are 6% pa, given as an APR compounding every 6 months, and the yield curve is flat. How many bonds should the firm issue?

- (a) 140,202
- (b) 184,280**
- (c) 184,460
- (d) 186,881
- (e) 200,000

Question 15: Details of two different types of lightbulbs are given below:

Low-energy lightbulbs cost \$3.50, have a life of nine years, and use about \$1.60 of electricity a year, paid at the end of each year.

Conventional lightbulbs cost only \$0.50, but last only about a year and use about \$6.60 of energy a year, paid at the end of each year.

The real discount rate is 5%, given as an effective annual rate. Assume that all cash flows are real. The inflation rate is 3% given as an effective annual rate.

Find the **Equivalent Annual Cost (EAC)** of the low-energy and conventional lightbulbs. The below choices are listed in that order.

(a) 1.4873, 6.7857

(b) 1.6525, 6.7857

(c) 2.1415, 7.1250

(d) 14.8725, 6.7857

(e) 2.0924, 7.1250

Equations:

$$PV(\text{single cash flow}) = V_0 = \frac{C_t}{(1 + r_{eff})^t}$$

$$PV(\text{annuity}) = V_0 = \frac{C_1}{r_{eff}} \left(1 - \frac{1}{(1 + r_{eff})^T} \right)$$

$$PV(\text{perpetuity}) = V_0 = \frac{C_1}{r_{eff} - g_{eff}}$$

$$r_{eff,annual} = (1 + r_{eff,monthly})^{12} - 1$$

$$r_{eff,monthly} = \frac{r_{APR,comp\ monthly}}{12}$$

$$Price_{bill} = V_0 = \frac{F_t}{\left(1 + r_{simple} \times \frac{t}{365} \right)}$$

$$r_{total} = r_{capital} + r_{income}$$

$$r_{0-T} = \left((1 + r_{0-1})(1 + r_{1-2})(1 + r_{2-3}) \dots (1 + r_{(T-1)-T}) \right)^{\frac{1}{T}} - 1$$

$$(1 + r_{0-T})^T = (1 + r_{0-1})(1 + r_{1-2})(1 + r_{2-3}) \dots (1 + r_{(T-1)-T})$$

$$CapEx = NFA_{now} - NFA_{before} + Depreciation$$

$$\uparrow NWC = (CA_{now} - CL_{now}) - (CA_{before} - CL_{before})$$

$$CFFA = NI + Depr - CapEx - \uparrow NWC + IntExp$$

$$CFFA = CF \text{ to equity holders} + CF \text{ to creditors}$$

$$P_{ex-rights} = \frac{n \times P_{cum-rights} + P_{subscription}}{n + 1}$$

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