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

Family name: ……..….
Other names: ……
Student ID: ……..……..

MACQUARIE UNIVERSITY
FACULTY OF BUSINESS AND ECONOMICS

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 $5. The growth rate in the dividend is 1% pa. You estimate that the stock's required return is 8% 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) 72.1429

(b) 71.4286

(c) 63.1250

(d) 63.1150

(e) 62.5000

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

(a) The project should be rejected.

(b) The project's IRR is more than its required return.

(c) The project's IRR is less than its required return.

(d) The project's IRR is equal to its required return.

(e) The project's Profitability Index should be less than 1.

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

(a) 36.2655

(b) 55.8395

(c) 59.3381

(d) 77.9197

(e) 87.3629

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	2	2	2	10	3	...

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) 62.9842

(b) 52.0526

(c) 50.5500

(d) 48.5009

(e) 47.1349

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) 61.5018

(b) 56.2432

(c) 54.0800

(d) 52.0000

(e) 48.0769

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

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

Which of the following statements is **incorrect**?

(a) The expected dividend in 3 years will be $\boldsymbol{D_1(1+g)^2}$.

(b) The expected price in 3 years will be $\boldsymbol{P_0(1+g)^3}$.

(c) The expected effective 3 year total return is equal to $\boldsymbol{((1+r)^3 - 1)}$.

(d) The expected effective 3 year total return is equal to $\boldsymbol{\left(\frac{P_1 - P_0 + D_1}{P_0}\right)^3}$.

(e) The expected effective annual dividend yield is equal to (D_1/P_0)

Question 7: You just signed up for a 30 year fully amortising mortgage with monthly payments of $1,000 per month. The interest rate is 6% pa which is not expected to change.

How much did you borrow? After 20 years, how much will be owing on the mortgage? The interest rate is still 6% and is not expected to change.

(a) 169,672.58, 90,724.32

(b) 166,791.61, 90,073.45

(c) 166,791.61, 139,580.77

(d) 165,177.97, 88,321.04

(e) 165,177.97, 137,639.05

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

Trademark Corp Income Statement for period ending 30 June 2011	
Net sales	100
COGS	30
Depreciation	20
EBIT	50
Interest expense	20
Taxable income	30
Taxes	9
Net income	21

Trademark Corp Balance Sheet as at 30 June		
	2011	2010
Current assets	120	80
PPE		
Cost	150	140
Accum. depr	60	40
Carrying amount	90	100
Total assets	210	180
Current liabilities	75	65
Non-current L	75	55
Owners Equity	60	60
Total L and OE	210	180

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

(a) -19

(b) 21

(c) 41

(d) 61

(e) 121

The following data relates to the next two questions.

Time (Years)	Project Cash Flows ($)
0	-400
1	0
2	500

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

Question 9: What is the Internal Rate of Return (IRR) of this project? The following choices are effective annual rates. Assume that the cash flows shown in the table are paid all at once at the given point in time.

(a) 0.2500

(b) 0.2000

(c) 0.1180

(d) 0.1056

(e) 0.0772

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 $500 at time 2 is actually earned smoothly from t=1 to t=2.

(a) -0.80

(b) 0.80

(c) 1.20

(d) 1.80

(e) 2.20

Question 11: A project's Profitability Index (PI) is **less than 1**. Select the most correct statement.

(a) The project should be rejected.

(b) The project's IRR is more than its required return.

(c) The project's payback period will be less than 3 years.

(d) The project's IRR is equal to its required return.

(e) The project's NPV is greater than 1.

Question 12: Harvey Norman the large retailer often runs sales advertising 2 years **interest free** when you purchase its products. This offer can be seen as a free personal loan from Harvey Norman to its customers.

Assume that banks charge an interest rate on personal loans of **12%** pa given as an APR compounding per month. This is the interest rate that Harvey Norman deserves on the 2 year loan it extends to its customers. Therefore Harvey Norman must implicitly include the cost of this loan in the advertised sale price of its goods.

If you were a customer buying from Harvey Norman, and you were paying immediately, not in **2 years**, what is the minimum percentage discount to the advertised sale price that you would insist on? (Hint: if it makes it easier, assume that you're buying a product with an advertised price of $100).

(a) 79.72%

(b) 24.00%

(c) 21.24%

(d) 20.28%

(e) 12.00%

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

(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% compounding semi-annually which has a price of $50,000.

(e) None of the above bonds are trading at par.

Question 14: A firm wishes to raise $8 million now. They will issue 7% pa semi-annual coupon bonds that will mature in 10 years and have a face value of $100 each. Bond yields are 10% pa, given as an APR compounding every 6 months, and the yield curve is flat. How many bonds should the firm issue?

(a) 107,441

(b) 98,393

(c) 90,480

(d) 80,000

(e) 64,039

Question 15: An industrial chicken farmer grows chickens for their meat.

Chickens cost \$0.50 to buy as chicks. They are bought on the day they're born, at t=0.

Chickens grow at a rate of \$0.70 worth of meat per chicken per week for the first 6 weeks (t=0 to t=6).

Chickens grow at a rate of \$0.40 worth of meat per chicken per week for the next 4 weeks (t=6 to t=10) since they're older and grow more slowly.

Chicken feed costs \$0.30 per chicken per week for their whole life. Chicken feed is bought and fed to the chickens once per week at the beginning of the week. So the first amount of feed bought for a chicken is at t=0 costs \$0.30, and so on.

Chickens can be slaughtered (killed for their meat) and sold at no cost at the end of the week. The price received for the chicken is their total value of meat (note that the chicken grows fast then slow, see above).

The farmer wants to know when he should slaughter the chickens.

The required return of the chicken farm is **0.5%** given as an effective weekly rate.

Ignore taxes and the fixed costs of the factory. Ignore the chicken's welfare and other environmental and ethical concerns.

Find the **Equivalent Annual Amount (EAA)** of slaughtering a chicken at **6 weeks** and at **10 weeks**. The choices below are given in the same order.

(a) \$0.3651, \$0.2374

(b) \$0.3172, \$0.3506

(c) \$0.3065, \$0.2157

(d) \$0.3050, \$0.2142

(e) \$0.0157, \$0.0491

Equations:

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

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

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

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

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

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

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

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

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

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

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

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

$$CFFA = \quad CF\ to\ equity\ holders \quad + CF\ to\ creditors$$

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

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