THE UNIVERSITY OF MELBOURNE

FNCE10002 Principles of Finance
Semester 1, 2019
Sample Mid Semester Exam 2

This sample exam and the mid semester exam are based on the material covered in weeks 1 – 4. The exam duration is 60 minutes with no reading time. Detailed suggested answers to this sample exam will be placed on the LMS in due course. On the mid semester exam, you will be required to enter your answers on a multiple choice answer sheet (MCAS). A sample of the MCAS is available via the Mid Semester Exam link. You will also be provided with adequate space for calculations, etc. in the exam booklet.

D 1. You currently (at the end of year 0) have $10,000 invested in an investment fund and you plan to add $300 to this fund at the end of every month. The fund is expected to earn an interest rate of 12% p.a., compounded monthly. At the end of 5 years, the total dollar value in this investment fund will be **closest** to:

A. $24,501.
B. $34,501.
C. $42,124.
D. $42,668.

D 2. The state government has just fined your company for breaches of the fire regulation act. It has offered the following payment options to the company. If the interest rate appropriate for the company is 10% p.a and all cash flows occur at the end of the year, which payment option should the company choose?

A. $550,000 now.
B. $150,000 per year for the next five years.
C. $900,000 at the end of year five.
D. $400,000 at the end of year one and $200,000 at the end of year two.

B 3. Your generous uncle has agreed to contribute towards funding your retirement. Specifically, he will start with a contribution of $6,000 next year but this amount will then decline at a constant rate of 3 percent per annum over the foreseeable future. If the interest rate appropriate for valuing your uncle's contribution is 12 percent per annum its present value today is **closest** to:

A. $38,800.
B. $40,000.
C. $50,000.
D. $66,667.

D 4. Suppose you plan to invest $10,000 in an investment fund at the end of every quarter for the next five years. Assume that the first $10,000 will be invested next quarter. The fund is expected to earn an annual return of 12% with returns compounded monthly. At the end of 5 years, the total dollar value in this investment fund will be **closest** to:

A. $63,528.
B. $68,058.
C. $268,704.
D. $269,525.

D 5. You have an $8,000 balance on your credit card, which charges an interest rate of 18% p.a. with interest compounded monthly. If you can only afford to repay $100 per month, the time it will take you to repay the credit card in full is **closest** to:

A. 14 months.
B. 162 months.
C. 170 months.
D. You will never be able to repay the credit card in full.

C 6. Your grandmother has been putting $1,000 into an investment account on every birthday since your first birthday (that is, when you turned one). The account pays an interest rate of 8% p.a., with interest compounded quarterly. The amount of money you will have in your account on your 30th birthday immediately after your grandmother makes the deposit on that birthday will be **closest** to:

A. $40,568.
B. $113,283.
C. $118,463.
D. $122,065.

Questions 7 and 8 are based on the following information.

You have just borrowed $100,000 from a bank for a ten-year period. You will be making quarterly payments on this loan and the interest rate on the loan is 8% per annum with interest compounded quarterly.

B 7. The principal balance outstanding at the end of the 12th quarter is **closest** to:

A. $56,133.
B. $77,795.
C. $78,338.
D. $85,790.

B 8. The total interest paid in the 13th quarter is **closest** to:

A. $1,123.
B. $1,556.
C. $2,000.
D. $3,656.

D 9. Which of the following statement is *most likely* to be **false**?

A. As firms mature, their growth slows to rates more typical of established firms.
B. The dividend discount model values ordinary shares based on the forecast of the future dividends to be paid to shareholders.
C. The simplest forecast for the firm's future dividends states that they will grow at a constant rate forever.
D. One should use the general dividend discount model to value the ordinary shares of a firm with rapid or changing growth rates in dividends.

10. Which one of the following statements regarding an ordinary annuity and annuity due is *most likely* to be **false**?

A. An annuity is a series of equal, periodic cash flows.
B. As the interest rate increases, the present value of an annuity decreases.
C. As the length of the annuity increases, the future value of the annuity decreases.
D. The present value of an ordinary annuity is typically less than the present value of an annuity due.

11. Market analysts expect Tadda Ltd's current earnings per share of $2.50 to grow at 5% per annum forever. The firm is also expected to retain 60% of these earnings forever. If the expected return on this stock is 20%, the price of Tadda Ltd's shares today should be **closest** to:

A. $6.67.
B. $7.00.
C. $16.67.
D. $17.50.

12. Empire Industries is experiencing a period of rapid growth in its earnings and profitability. Earnings and dividends are expected to grow at a rate of 20% p.a. during the next two years, at 15% p.a. in the third year, and at a constant rate of 8% p.a. thereafter. Empire's most *recent* dividend per share was $1.00, and the required rate of return on the stock is 12% p.a. Garth Vedah, a senior analyst with Star Financial, has asked you to estimate the price at which Empire's stock should be selling for today based on this information. The estimated price is **closest** to:

A. $31.80.
B. $35.20.
C. $37.10.
D. $44.70.

13. The owner of the Krusty Krab is considering selling her restaurant and retiring. An investor has offered to buy the Krusty Krab for $350,000 whenever the owner is ready for retirement. The owner is considering hiring someone to manage the restaurant for the next year and then retire. This will require the owner to spend $50,000 now, but will generate $100,000 in profit next year. In one year, the owner will sell the restaurant for $350,000. If the interest rate for valuing this investment is 7% p.a., the net present value of this option is **closest** to:

A. $350,000.
B. $357,196.
C. $370,561.
D. $401,121.

14. A Treasury bill with a face value of $100,000 matures in 180 days. If its market price today is $95,750 then its annualized yield to maturity is **closest** to:

A. 4.44% p.a.
B. 8.62% p.a.
C. 8.88% p.a.
D. 9.00% p.a.

Formula Sheet for Sample Mid Semester Exam

$FV_n = PV_0(1+n\times r)$	$PV_0 = \dfrac{FV_n}{(1+n\times r)}$
$FV_n = PV_0(1+r)^n$	$PV_0 = \dfrac{FV_n}{(1+r)^n}$
$PV_0 = \dfrac{C}{r}$	$PV_0 = \left(\dfrac{C}{r}\right)\left(\dfrac{1}{(1+r)^n}\right)$
$PV_0(\text{OA}) = \left(\dfrac{C}{r}\right)\left(1-\dfrac{1}{(1+r)^n}\right)$	$FV_n(\text{OA}) = \left(\dfrac{C}{r}\right)\left[(1+r)^n-1\right]$
$PV_0(AD) = \left(\dfrac{C}{r}\right)\left(1-\dfrac{1}{(1+r)^n}\right)(1+r)$	$FV_n(AD) = \left(\dfrac{C}{r}\right)\left[(1+r)^n-1\right](1+r)$
$PV_0 = \dfrac{C_1}{r-g}$	$PV_0(GA) = \left(\dfrac{C_1}{r-g}\right)\left(1-\dfrac{(1+g)^n}{(1+r)^n}\right)$
$FV_n(GA) = \left(\dfrac{C_1}{r-g}\right)\left(1-\dfrac{(1+g)^n}{(1+r)^n}\right)(1+r)^n$	$r_e = \left(1+\dfrac{r}{m}\right)^m - 1$
$r_e = e^r - 1$	$P_0 = F_n/[1 + (n/365) \times r_D]$
$P_0 = \left(\dfrac{C}{r_D}\right)\left(1-\dfrac{1}{(1+r_D)^n}\right)+\dfrac{F_n}{(1+r_D)^n}$	$P_0 = \sum_{t=1}^{n}\left(\dfrac{D_t}{(1+r_E)^t}\right)+\dfrac{P_n}{(1+r_E)^n}$
$r_E = \dfrac{D_{n+1}}{P_n}+\dfrac{P_{n+1}-P_n}{P_n}$	$P_n = \dfrac{D_{n+1}}{r_E-g}$
$r_E = \dfrac{D_{n+1}}{P_n}+g$	$g = r_E-\dfrac{D_{n+1}}{P_n}$
$\dfrac{P_0}{E_1} = \dfrac{\alpha}{r_E-g}$	$\dfrac{P_0}{E_0} = \dfrac{\alpha(1+g)}{r_E-g}$