CHARLES DARWIN UNIVERSITY

Family Name	
Given Names	
Student Number	
Teaching Period	Semester 1, 2017

FINAL EXAMINATION	**DURATION**
FIN510 – Aspects of Corporate Finance	Reading Time: **10** minutes Writing Time: **180** minutes

INSTRUCTIONS TO CANDIDATES

1.1 The examination has 2 sections.

Section A: Suggested Time:	**Multi Choice Questions**: Answer ALL 29 questions 50 marks 90 minutes
Section B: Suggested Time:	**Short Answer Questions:** Answer ALL 4 questions 50 marks 90 minutes

Section A must be answered on the Multiple Choice Answer Sheet provided in this examination paper and must be handed in with your answer booklet.

Section B is to be answered in the Answer Booklet provided. Please show your calculations clearly.

Please ensure that your name and student number are clearly indicated on your Answer Sheet and at the top of this examination paper.

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.

This is a RESTRICTED OPEN BOOK examination

Any non-programmable calculator is permitted

No handwritten notes are permitted

Hard copy, unannotated English translation dictionary only

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	1 x 8 Page Book 1 x 4-Multiple Choice Answer Sheet 1 x Scrap Paper

THIS EXAMINATION IS PRINTED DOUBLE-SIDED.

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Section B

Short Answer Questions

Total No of Marks for this section: 50

This section should be answered in the Answer Booklet provided. Please show your calculations clearly.

The marks for each question are indicated.

Q. 1 (Marks: 20)

Modern Designs Ltd. is considering opening up a new store in Perth. The store will have a life of 25 years. It will generate annual sales of 4,700 machines, and the price of each machine is $3,500. The annual sales of spare parts will be $655,000 and the operating expenses of the store, including labour & rent, will amount to 35% of the revenues from machines. The initial investment in the store will equal $20 million & will be fully depreciated on a straight line basis over the 20-year life of the store. The residual value of the store at the end of 25 years will be $2 million. The company will need to invest $2.5 million in additional working capital immediately, and recover it at the end of the investment. The company's tax rate is 30%. The opportunity cost of opening up the store is 9%.

Would you recommend Modern Designs Ltd. to open this new store in Perth? Why or why not?

Please substantiate your answer with calculations clearly.

(Marks: 20)

Q.2 (Marks: 5)

Describe what exactly is meant when someone is describing the value of the company versus the value of the equity of the company.

(Marks: 5)

Q. 3 (Marks: 10)

Assume that capital markets are perfect. A firm finances its operations with $50 million in stock, with a required return of 15 percent, and $40 million in bonds with a required return of 9 percent. Assume the firm could issue $10 million in additional bonds, at 9 percent.

Required:

a. Using the proceeds to retire $10 million worth of equity, what would happen to the firm's WACC? Why?

(Marks: 4)

b. What would happen to the required return on the company's stock? Why?

(Marks: 6)

Q4. (Marks: 15)

Mason Manufacturing is contemplating offering a new $60 million bond issue to replace an outstanding $60 million bond issue. The firm wishes to do this to take advantage of the decline in interest rates that has occurred since the initial bond issuance. The old and new bonds are described below. The firm is in the 30 per cent tax bracket.

Old bonds. The outstanding bonds have a $1,000 par value and a 7.5 per cent coupon interest rate. They were issued three years ago with a 15-year maturity. They were initially sold for their par value of $1,000, and the firm incurred $345,000 in floatation costs. They are callable at $1,070.

New bonds. The new bonds would have a $1,000 par value, a 6 per cent coupon interest rate, and a 12-year maturity. They could be sold at their par value. The floatation cost of the new bonds would be $360,000. The firm expects to have two months of overlapping interest.

Required:

a. Calculate the initial investment that is required to call the old bonds & issue the new bonds.

(Marks: 4)

b. Calculate the annual cashflow savings, if any, expected form the proposed bond refunding decision.

(Marks: 6)

c. Would you recommend the proposed refunding? Why? Show your calculations clearly to explain your answer.

(Marks: 5)

Formula Sheet

1. FV = PV $(1 + r)^n$

   FV = PV (1+ r x n)

2. PV = $\frac{FV}{(1+r)^n}$

3. FV = $\sum_{t=1}^{n} CF_t (1+r)^{n-t}$

4. FV = PMT $\left[\frac{(1+r)^n - 1}{r}\right]$

5. FV (annuity due) = PMT $\left[\frac{(1+r)^n - 1}{r}\right]$ x $(1+r)$

6. PV = $\sum_{t=1}^{n} CF_t (1+r)^{-t}$

7. PV = $\frac{PMT}{r} \times \left[1 - \frac{1}{(1+r)^n}\right]$

8. PV (annuity due) = $\frac{PMT}{r} \times \left[1 - \frac{1}{(1+r)^n}\right] \times (1+r)$

9. PV (deferred annuity) = $\frac{PMT}{r} \times \left[1 - \frac{1}{(1+r)^n}\right] / (1+r)^{x-1}$

10. PV = $\frac{PMT}{r}$

    PV (deferred constant perpetuity) = $\frac{PMT}{r} / (1+r)^{x-1}$

11. PV = $\frac{CF_1}{r-g}$ where r > g

    PV (deferred growing perpetuity) = $\frac{CF_x}{r-g} / (1+r)^{x-1}$

12. FV = PV $\times\left(1+\frac{r}{m}\right)^{m\times n}$

13. FV (continuous compounding)= PV $\times\left(e^{r\times n}\right)$

14. EAR = $(1+\frac{r}{m})^{m}$ - 1

15. EAR(continuous Compounding) = $e^{r}-1$

16. $$P_0 = C\times\left[\frac{1-\frac{1}{(1+r)^n}}{r}\right]+\frac{M}{(1+r)^n}$$

17. $$P_0 = \frac{C}{2}\times\left[\frac{1-\frac{1}{(1+\frac{r}{2})^{2n}}}{\frac{r}{2}}\right]+\frac{M}{(1+\frac{r}{2})^{2n}}$$

18. $$(1+r)^2 = (1+r_1)[1+E(r_2)]$$

19. $$(1+r_{nom}) = (1+i)(1+r_{real})$$

20. g = rr $\times$ ROE

21. $$V_S = V_F - V_D - V_P$$

22. Total dollar return = income + capital gain or loss

23. Total % return = total dollar return $\div$ initial investment

24. Variance = $\sigma^2 = \dfrac{\sum_{t=1}^{N}(R_t - \overline{R})^2}{N-1}$

Variance = $\sigma^2 = \sum P_i\left(R_i - \overline{R}\right)^2$

25. Standard deviation = $\sigma = \sqrt{Variance}$

26. $\bar{r} = \sum_{i=1}^{n} r_i P_i$ = E (r)

27. $\sigma_{ij} = \dfrac{\sum_{t=1}^{n}(r_{i;t} - \bar{r}_i)(r_{j;t} - \bar{r}_j)}{n-1}$

28. $\sigma(\tilde{r}) = \sqrt{\sum_{i=1}^{n}(r_i - \bar{r})^2 \times P_i}$

29. $\rho_{ij} = \dfrac{\sigma_{ij}}{\sigma_i \sigma_j}$

30. $\sigma_p{}^2 = \sum_{i=1}^{n}\sum_{j=1}^{n} x_i x_j \sigma_{ij}$

$\sigma_p^2 = x_1^2\sigma_1^2 + x_2^2\sigma_2^2 + 2x_1x_2\sigma_{12}$

$\sigma_p^2 = x_1^2\sigma_1^2 + x_2^2\sigma_2^2 + x_3^2\sigma_3^2 + 2x_1x_2\sigma_{12} + 2x_1x_3\sigma_{13} + 2x_2x_3\sigma_{23}$

31. $E(r_p) = r_f + \dfrac{E(r_m - r_f)}{\sigma_m} \times \sigma_p = r_f + E(r_m - r_f) \times \dfrac{\sigma_p}{\sigma_m}$

$E(r_p) = r_f + E(r_m - r_f)\beta_p$ where $\beta_p = \dfrac{\sigma_p}{\sigma_m}$

32. $E(r_i) = r_f + E(r_m - r_f)\beta_i$

33. $\beta = \dfrac{\text{cov}\, ariance(X_t, Y_t)}{Variance(X_t)}$

34. $Covanriance(X_t, Y_t) = \sum_{t=1}^{n} \dfrac{\left[(r_{i,t} - r_{f,t}) - (\overline{r_{i,t} - r_{f,t}})\right] \times \left[(r_{m,t} - r_{f,t}) - (\overline{r_{m,t} - r_{f,t}})\right]}{n-1}$

35. $E(R_p) = w_1(R_1) + w_2(R_2) + \ldots\ldots\ldots + w_n(R_n)$

$w_1 + w_2 + \ldots\ldots\ldots w_n = 1$

36. $E(R_i) = R_f + \beta_i(E(R_m) - R_f)$

37. PI = $\dfrac{\sum_{i=1}^{n} \dfrac{CF_i}{(1+r)^i}}{CF_0}$

38. Operating Leverage = $\dfrac{\Delta EBIT}{EBIT} \div \dfrac{\Delta Sales}{Sales}$

39. WACC = $\left(\dfrac{D}{D+E}\right) r_d + \left(\dfrac{E}{D+E}\right) r_e$

40. WACC = $\left(\dfrac{D}{D+E}\right)(1 - T_c) r_d + \left(\dfrac{E}{D+E}\right) r_e$

41. WACC = $\left(\dfrac{D}{D+E+P}\right) r_d + \left(\dfrac{E}{D+E+P}\right) r_e + \left(\dfrac{P}{D+E+P}\right) r_p$

42. V = (E+D) = $\dfrac{EBIT}{r}$

43. $r_l = r + (r - r_d)\dfrac{D}{E}$

44. $V_u = \left[\dfrac{EBIT(1 - T_c)}{r}\right] = \dfrac{NI}{r}$

45. PV Interest tax Shields = $\frac{(T_c \times r_d D)}{r_d} = T_c \times D$

46. $V_L = V_U + PVtaxshiel\,ds = V_U + T_C D$

$V_L = V_U + PVtaxshiel\,ds - PVbankruptacy\cos ts + PVagency\cos tsOE - PVagency\cos tOD$

47. $G_L = \left[1 - \frac{(1-T_c)(1-T_{PS})}{(1-T_{PD})}\right] \times D$

48. $D_t = \rho EPS_t$

49. $ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

50. BEP = $\frac{fixed\ \cos ts}{Contributi\,onm\arg in}$