



Hong Kong Institute of  
**Accredited Accounting Technicians**  
香港財務會計協會

# Professional Bridging Examination

## Paper II PBE Management Accounting and Finance

### June 2013 Session (Questions)

Time Allowed	3 hours
Examination Assessment Allocation	
• Section A – All TWO questions are compulsory	40 Marks
• Section B – Answer 3 out of 4 questions	60 Marks

Do not open this question paper until instructed by the supervisor.

This question paper must not be removed from the examination centre.

## PAPER II – PBE MANAGEMENT ACCOUNTING AND FINANCE

This examination is divided into TWO sections.

- Section A (40%). This consists of TWO compulsory questions. You should allocate approximately 1 hour 12 minutes in total for Section A.
- Section B (60%). This consists of four questions, of which you must answer THREE questions only. Each of these three questions is worth 20% of the total marks (making Section B worth 60% of the total marks). You should allocate approximately 36 minutes for each question (that is, 1 hour 48 minutes in total for Section B).

Suggested time allocation (by marks):

Marks	Approximate time in minutes
1	2
2	3
3	5
4	7
5	9
6	11
7	12
8	14
9	16
10	18
11	20
12	21
13	23
14	25
15	27
16	29
17	31
18	32
19	34
20	36

**SECTION A (COMPULSORY) (Total: 40 marks)**

Answer **ALL** questions in this section. Marks are indicated at the end of each question. Together they are worth 40% of the total marks for this examination.

**CASE**

Power Company is a leading manufacturer of batteries in South East Asia. It manufactures many leading product lines of batteries for electronic equipment. Recently, it introduced two types of new battery called "Infinity" and "Performance". The "Infinity" brand is sold at HK\$360 and has a useful life of 3 years. It costs HK\$1,000 per year to recharge the battery. The "Performance" brand is sold at HK\$600 each and has a useful life of 5 years. It costs HK\$880 per year to recharge the battery.

Tony is the financial controller of Power Company. Every year, over 100,000 batteries from Power Company are provided for the production line of electronic devices such as walkie-talkies and portable computers. After a presentation made by the Technical Department of the Power Company, Tony asked his project accountant Amy Chung to conduct an analysis and make a recommendation as to which product lines of battery the company is going to produce for their new electronic devices. The company's accounting department uses straight line depreciation with HK\$0 residual value in its evaluation and product life cycle costing in the costing analysis for its electronic appliances. The relevant tax rate is 16% and a discount rate of 10% is used.

On an annual basis, Power Company can produce 1,200,000 batteries of any type in its production plant in Thailand. It is expected that with the introduction of the new batteries, the demand will increase to 2,000,000. Power Company can either expand the production line by investing additional capital of HK\$2,000,000 or by outsourcing the production of the new batteries to another company. The price and cost information of "Infinity" and "Performance" are as follows:

<u>Brand</u>	<u>Infinity</u>	<u>Performance</u>
Price	HK\$360	HK\$600
Variable Cost	HK\$200	HK\$350
Contribution Margin	HK\$160	HK\$250
Fixed Cost	HK\$100	HK\$150

It is expected that with the expansion, the company can produce 500,000 "Infinity" batteries and 300,000 "Performance" batteries. If the production is outsourced, the fixed cost of the batteries cannot be reduced. One company offers to charge HK\$240 and HK\$390 per battery for the production of "Infinity" and "Performance" respectively.

The management of Power Company takes serious steps in evaluating the production process of the batteries and the impact on the environment and the economy. It uses the value chain approach in its internal management and observes Triple Bottom Line in its business decisions.

**Question 1** (25 marks – approximately 45 minutes)

Assume that you are Amy Chung, you are conducting the evaluation for the two new batteries.

**Required:**

- (a) Write down the original definition of Operating Cash Flow (OCF) in terms of Earnings before Interest and Tax (EBIT), Depreciation (D) and Tax (Tax). (1 mark)
- (b) If S is the sales revenue, C is the operating cost, D is the depreciation and T is the tax rate. Use the Income Statement approach to write the formula for the OCF in terms of S, C, D and T. (4 marks)
- (c) Make use of the formula in part (b) to calculate the OCF for the product "Infinity" and "Performance". (8 marks)
- (d) Calculate the Equivalent Annual Cost (EAC) of the product "Infinity" and "Performance". Indicate your purchase decision for the electronic devices if the two batteries are mutually exclusive. (6 marks)
- (e) State TWO concerns regarding the evaluation you performed in part (c) and part (d). (2 marks)
- (f) Explain why product life cycle costing is used in the costing analysis for electronic appliances such as mobile phones. (4 marks)

**Question 2** (15 marks – approximately 27 minutes)

The Financial Controller of Power Company is exploring the possibility of outsourcing the production of the new batteries to another manufacturer.

**Required:**

- (a) Based on the information presented in the case, recommend whether the company should be outsourcing or not if there is no capital constraint in keeping both products. Show your workings clearly. (8 marks)
- (b) What TWO qualitative factors do you have to consider for the outsourcing decision? (4 marks)
- (c) Explain the meaning and significance of the three components of the Triple Bottom Line. (3 marks)

\* \* \* END OF SECTION A \* \* \*

**SECTION B (ANSWER THREE QUESTIONS ONLY) (Total: 60 marks)**

Answer any **THREE** questions in this section. Each question carries 20 marks. Together they are worth 60% of the total marks for this examination.

**Question 3 (20 marks – approximately 36 minutes)**

In project evaluation, a discount rate is used to calculate Net Present Value (NPV) and a decision is made accordingly. The discount rate often is linked to the Weighted Average Cost of Capital (WACC).

**Required:**

(a) What are the two components of WACC? (2 marks)

(b) Suppose an extracted portion of the market value statement of the financial position of a company is as follows:

Assets	HK\$100 million
Debt	HK\$40 million
Equity	HK\$60 million

The risk free rate is 1%, the beta coefficient of the shares with respect to stock market index is 1.2, market risk premium is 8%, tax rate is 16%, and cost of debt is 3.6%.

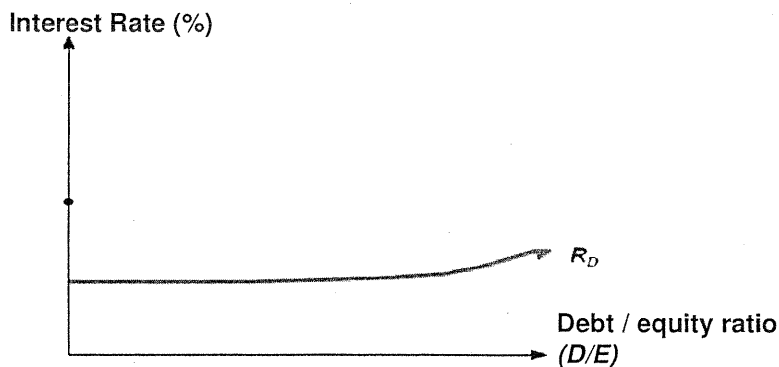
**Required:**

Calculate the WACC. (6 marks)

(c) Explain why WACCs are used as the discount rate for different projects, and why it is not the same WACC for each project. (4 marks)

(d) Is it cheaper to raise debt or equity from the company's perspective? Explain and give reasons. (4 marks)

(e) Refer to the graph below, explain the trend of  $R_D$  and the reasons behind it. Also, point out the two costs involved. (4 marks)



(4 marks)

**Question 4 (20 marks – approximately 36 minutes)**

It is observed that whenever a company announced a reduction in dividend payment, stock prices decreased immediately.

**Required:**

- (a) If the current price of a stock is HK\$108 and its dividend per share for last year was HK\$5.2, calculate the historical dividend yield. (2 marks)
- (b) Explain why a reduction in dividend payment would lead to a reduction in stock price. (4 marks)
- (c) It is expected that dividend will grow at 2% per annum on average in the coming few years, suppose you ask for 7% return from this stock, calculate the expected current price. (using the information from part (a)) (5 marks)
- (d) Explain the meaning of residual dividend policy and constant payout policy respectively. (6 marks)
- (e) Why is it very difficult to maintain a constant dividend growth policy? Give one possible reason. (3 marks)

**Question 5 (20 marks – approximately 36 minutes)**

Cash management is essential for the survival of a company. Without sufficient cash, a company cannot meet short term debt obligations. On the other hand, a company may have an excessive amount of cash during some peak sales seasons.

**Required:**

- (a) Explain the basic rationale behind the Miller-Orr Model by using a graph with your explanation. (6 marks)
- (b) Suppose the short term securities yield is 5% and it costs the company HK\$50,000 each time it buys or sells securities. The daily variance of cash flows is HK\$1,000,000 and the bank requires HK\$1,000,000 minimum current account balance. Assume 1 year consists of 365 days.
- (i) What is the target cash balance? (4 marks)
- (ii) What is the upper balance for the cash account? (2 marks)
- (iii) Suggest one way to improve cash shortage other than the one suggested in the Miller-Orr Model. (2 marks)
- (c) Describe one of the major (i) costs and (ii) benefits of taking up early payment discounts offered by creditors. (6 marks)

**Question 6** (20 marks – approximately 36 minutes)

In evaluating the performance of different divisions in a company, the divisions may be classified as cost centre, profit centre or investment centre.

**Required:**

- (a) Explain the meanings of cost centre, profit centre and investment centre. (6 marks)
- (b) A company has average assets of HK\$5,000,000 and a profit margin of HK\$1,000,000, calculate the return on investment. (2 marks)
- (c) The company is considering to produce a new product. The company needs to invest an additional asset of HK\$2,000,000 and the additional profit margin is expected to be HK\$260,000, what are the return on investment of the product and the new return on investment of the company respectively? (4 marks)
- (d) If you are the decision maker, what is your decision regarding the introduction of the new product? Briefly explain. (3 marks)
- (e) Assuming the rate of return on assets is 10%, calculate the residual income for the following three cases using the information in (b) and (c):
- (i) before the introduction of the new product;
  - (ii) the new product; and
  - (iii) after the introduction of the new product.
- (5 marks)

\* \* \* END OF EXAMINATION PAPER \* \* \*



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# Answers

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Paper II  
PBE Management  
Accounting and Finance  
(June 2013 Session)

**Section A (Total: 40 marks)**

**Answer 1(a)**

$$\text{OCF} = \text{EBIT} + \text{Depreciation} - \text{Tax}$$

**Answer 1(b)**

$$\text{OCF} = (\text{S}-\text{C}) \times (1-\text{T}) + \text{D} \times \text{T}$$

**Answer 1(c)**

$$\begin{aligned} \text{OCF for Infinity} &= (1,000) \times 0.84 - (360 / 3) \times 0.16 \\ &= (820.8) \end{aligned}$$

$$\begin{aligned} \text{OCF for Performance} &= (880) \times 0.84 - (600 / 5) \times 0.16 \\ &= (720) \end{aligned}$$

**Answer 1(d)**

Infinity brand

	Year 0	Year 1	Year 2	Year 3
OCF		-820.8	-820.8	-820.8
Capital Spending	-360			0
Total	-360	-820.8	-820.8	-820.8
PV (10% discount rate)	-360	-746.18	-678.35	-616.67
Total	-2,401.2			
EAC	=(2,401.2) / 2.4869 = (HK\$965.54)			

Performance brand

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
OCF		-720	-720	-720	-720	-720
Capital Spending	-600					0
Total	-600	-720	-720	-720	-720	-720
PV (10% discount rate)	-600	-654.55	-595.04	-540.95	-491.77	-447.1
Total	-3,329.4					
EAC	=(3,329.4) / 3.7908 = (HK\$878.28)					

Buy Performance as its EAC is lower.

**Answer 1(e)**

The accuracy of the estimate on cost and useful life. The validity of the discount rate.

**Answer 1(f)**

Product life cycle costing is used because we need to provide maintenance and after-sales service to mobile phone customers as part of the customer services. This part of the cost is essential as good maintenance and after-sales service is one of the competitive advantages.

**Answer 2(a)**

Internal production cost

$$500,000 \times (\text{HK\$}200 + \text{HK\$}100) + 300,000 \times (\text{HK\$}350 + \text{HK\$}150) = \text{HK\$}300,000,000$$

$$\begin{aligned} \text{Outsourcing cost} &= 240 \times 500,000 + 390 \times 300,000 + 500,000 \times \text{HK\$}100 + 300,000 \times \text{HK\$}150 \\ &= \text{HK\$}332,000,000 \end{aligned}$$

Alternatively, the incremental cost is:

$$-\text{HK\$}200 \times 500,000 - \text{HK\$}350 \times 300,000 + \text{HK\$}240 \times 500,000 + \text{HK\$}390 \times 300,000 = \text{HK\$}32,000,000$$

The decision is not to outsource.

**Answer 2(b)**

When an outsourcing decision is made, both qualitative and quantitative factors should be considered. For qualitative factors, product quality, quality of the company, reliability of delivery, and after sales service must be evaluated carefully before a final decision is made.

**Answer 2(c)**

Triple Bottom Line considers economic, social and environmental factors when a firm makes a decision. It takes into account sustainability and social responsibility in addition to the financial costs in the business decision.

\* \* \* END OF SECTION A \* \* \*

**Section B** (Total: 60 marks)

**Answer 3(a)**

The two components of WACC are cost of debt and cost of equity

**Answer 3(b)**

Cost of equity =  $1\% + 1.2 \times 8\% = 10.6\%$

WACC =  $\text{HK\$}60/\text{HK\$}100 \times 10.6\% + \text{HK\$}40/\text{HK\$}100 \times 3.6\% (1-16\%) = 7.57\%$

**Answer 3(c)**

Different projects are financed differently in terms of equity and debt. In addition, different projects have different risks, so normally a company uses a different WACC for each project in order to suit the capital structure and risk of each project.

**Answer 3(d)**

It is cheaper to raise debt than to raise equity. We normally see that the cost of debt (interest rate) is lower than the cost of equity (dividend yield). This reflects the risk involved as debt carries a lower risk than equity.

**Answer 3(e)**

Referring to the figure, borrowing cost ( $R_D$ ) increases when the debt level is high. It reflects the increase in bankruptcy costs. Bankruptcy costs could be direct or indirect. Direct bankruptcy costs include legal expense and indirect bankruptcy costs include lost sales and the loss of valuable employees.

**Answer 4(a)**

Historical dividend yield = historical dividend per share/ price per share  
=  $\text{HK\$}5.2/\text{HK\$}108 = 4.81\%$

**Answer 4(b)**

The present value of future dividend decreases, price of the stock decreases accordingly.

**Answer 4(c)**

$P = D_1 / (r-g) = \text{HK\$}5.2 \times 1.02 / (7\%-2\%) = \text{HK\$}106.08$

**Answer 4(d)**

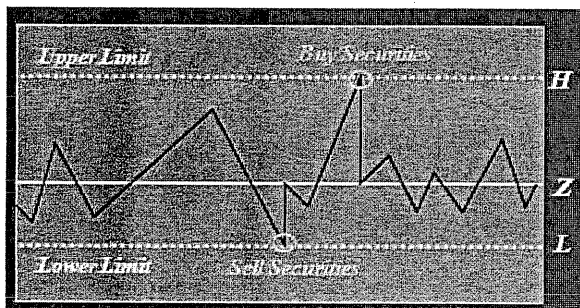
Residual dividend policy refers to the situation when a company distributes dividend only after paying for its new project. When there is nothing left after financing its new project, no dividend is paid.

Constant payout dividend policy refers to the situation when a company maintains a constant dividend payout ratio, say, 45%.

**Answer 4(e)**

It is difficult to maintain a constant dividend growth policy because if the dividend is growing every year, sales revenue and profit are likely growing at the same rate which is very difficult as the economy is cyclical.

**Answer 5(a)**



From the graph, the rationale behind the Miller-Orr Model is that when the cash level of a company reaches the upper limit (H), the company buys securities for short term investment. When the cash level reaches the lower limit (L), it sells securities to provide more cash.

**Answer 5(b)(i)**

$$Z - (3 \times \text{HK\$}50,000 \times \text{HK\$}1,000,000 / (5\% / 365))^{(1/3)} + \text{HK\$}1,000,000 = \text{HK\$}1,064,930.89$$

**Answer 5(b)(ii)**

$$H - 3 \times \text{HK\$}1,064,930.89 - 2 \times \text{HK\$}1,000,000 = \text{HK\$}1,194,792.68$$

**Answer 5(b)(iii)**

A company may consider using a line of credit offered by a bank to solve its short-term cash flow problem.

**Answer 5(c)**

When a company pays earlier, it can maintain good relationships with its creditors and avoid the surcharges of making late payments. This may facilitate better purchase terms in the future. The cost of making early payments includes opportunity cost as money paid earlier, especially large amounts, may be used for better investments. In addition, early payment may create a cashflow shortage. When this happens, a company may have to ask for short-term borrowing and incur interest expenses.

**Answer 6(a)**

A cost centre is a responsibility centre in a company where the managers are accountable for costs only. A profit centre is a responsibility centre where the managers are accountable for revenue and cost (hence profit) only. An investment centre is a responsibility centre where the managers are accountable for its investment return.

**Answer 6(b)**

Return on investment = HK\$1,000,000 / HK\$5,000,000 = 20%

**Answer 6(c)**

Return on investment = HK\$260,000 / HK\$2,000,000 = 13%

Return on investment = HK\$1,260,000 / HK\$7,000,000 = 18%

**Answer 6(d)**

Both the return on investment of the product and of the company decrease and so it is better not to invest in the new product.

**Answer 6(e)(i)**

Residual income = HK\$1,000,000 - 10% x HK\$5,000,000 = HK\$500,000

**Answer 6(e)(ii)**

Residual income = HK\$260,000 - 10% x HK\$2,000,000 = HK\$60,000

**Answer 6(e)(iii)**

Residual income = HK\$1,260,000 - 10% x HK\$7,000,000 = HK\$560,000

\* \* \* END OF EXAMINATION \* \* \*

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# Examination Panelist's Report

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Paper II  
PBE Management  
Accounting and Finance  
(June 2013 Session)

*(The main purpose of the following report is to summarise candidates' common weaknesses and make recommendations to help future candidates improve their performance in the examination.)*

## **General Comments**

Candidates performed satisfactorily in this paper. They were able to master the basic concept of management accounting. However, they did not perform that well in Finance and failed to apply their knowledge to problem solving. Many candidates did not give the correct answer to the basic equation for operating cash flow (OCF) and did poorly in question 1. If candidates could succeed in tackling the opening part, the overall performance could be much better.

## **Specific Comments**

### **Section A – Compulsory Questions**

#### **Question 1 – 25 marks**

This question tested candidates' basic understanding of cash flow and apply it to solve the equivalent annual cost problem. Most candidates forgot the basic formula for deriving operating cash flow from the financial statement which is  $OCF = EBIT + Depreciation - Tax$ . Failing to use this basic equation seriously affected the whole analysis.

Equivalent annual cost (EAC) deals with comparing the cost of assets with different useful lives. After getting the NPV, candidates needed to find the equivalent annual cost by dividing the respective PV factor. Only a few candidates knew this important step, most of them simply divided by the original lives of 3 years and 5 years respectively. It is suggested that students should revise the teaching notes with examples more thoroughly.

A short question was asked on life cycle costing. The performance was not satisfactory. Most candidates mixed up it with product life cycle. It is suggested that students should learn the circumstances for using life cycle costing.

#### **Question 2 – 15 marks**

This question tested candidates' ability to solve an outsourcing problem. Candidates were able to master the basic rationale although quite a number did not know the full details of Triple Bottom Line. This model is important nowadays as government officials have needed to use it when getting finance for various controversial projects like the Tseung Kwan O Landfill.



## Section B – Optional Questions

### Question 3 – 20 marks

This question assessed candidates' understanding of the concept of WACC and its calculation. Students performed satisfactorily in this question and it showed that they were familiar with the concept of WACC although only a few could give the correct answer to part (e) when interest rate increases with debt level due to increasing default risk.

### Question 4 – 20 marks

This question was answered fairly well. It tested candidates' knowledge of dividend policy. Most of them could give the correct answer to the calculation but only a few could explain the meaning of residual dividend policy and constant payout policy.

### Question 5 – 20 marks

This question was quite popular among candidates. Candidates were able to draw the correct graph in part (a) and gave the correct answer to part (e). Some, however, did not explain the graph clearly and lost some marks. In particular, they needed to indicate what management should do at the upper limit and the lower limit. In terms of the calculation, performance was satisfactory. This showed that candidates handled the concept of working capital management quite well.

### Question 6 – 20 marks

This question tested candidates' ability to distinguish different responsibility centres. Similar questions have appeared frequently in the past. Candidates performed well in this question and this showed that they were able to apply their knowledge to solve practical problems.

\* \* \* END OF EXAMINATION PANELIST'S REPORT \* \* \*

