



Professional Bridging Examination

Paper II PBE Management Accounting and Finance

June 2016 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	30
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

Question 1 (20 marks – approximately 36 minutes)

Cookie Master is a private company which produces and sells home-made cookies in Wanchai district. The company produces at full capacity and sells three types of cookies: Macaroon, Chocolate and Vanilla Cream. Each type of cookie is produced in batches of different sizes.

The production of cookies involves the manual process of mixing and putting ingredients into the moulds. Then, the moulds are put into the oven for baking. After that, the cookies will be packed into individual packages for sale. Cookie Master is considering to implement the Activity Based Costing (“ABC”) System. After a detailed study of the operation, the director has forecasted the following for the coming year:

Products	<u>Macaroon</u>	<u>Chocolate</u>	<u>Vanilla Cream</u>
Production and sales units	500,000	800,000	600,000
Selling price per unit	HK\$9.0	HK\$7.5	HK\$6.0
<i>Cost per unit</i>			
Direct materials	HK\$2.0	HK\$1.5	HK\$1.4
Direct labour	HK\$4.0	HK\$2.0	HK\$2.0
<i>Hours used per batch</i>			
Direct labour hours	2	1	1
Oven hours	1.5	1.5	1
Packing machine hours	0.5	1	0.5
Batch size (units)	1,000	1,600	1,200

Production overheads forecast for the coming year are as follows:

<u>Production overheads</u>	<u>Amount</u>	<u>Cost drivers</u>
	HK\$'000	
Oven operation cost	\$2,000	Oven hours
General packaging overhead	\$1,500	Packaging machine hours

With all the data in place, management can make use of it to estimate the cost and to formulate the price accordingly. You are the management accountant at Cookie Master and you are asked to conduct a cost analysis of the products.

Required:

- (a) Calculate the activity cost driver rate for:
- (i) the oven operation cost; and
 - (ii) the general packaging overhead.
- (6 marks)
- (b) Calculate production overheads for each batch of the Macaroon, Chocolate and Vanilla Cream cookies based on the answers in part (a).
- (3 marks)
- (c) Compute the forecasted profit for each batch of the Macaroon, Chocolate and Vanilla Cream cookies under the ABC system using the answers in parts (a) and (b).
- (3 marks)
- (d) Compute the profit for each batch of the Macaroon, Chocolate and Vanilla Cream cookies under the traditional costing system when direct labour hours are used as the overhead allocation base to allocate the production overheads.
- (5 marks)
- (e) Other than the ABC system, what other costing systems are more appropriate in this case? Explain your rationale briefly.
- (3 marks)

Question 2 (20 marks – approximately 36 minutes)

Costing is closely related to pricing and accurate costing estimation could lead to better pricing.

Required:

- (a) Explain the consequence of overcosting for a product or service. (3 marks)
- (b) Explain the consequence of undercosting for a product or service. (3 marks)
- (c) What are the TWO broad types of pricing methods? Explain briefly. (6 marks)
- (d) In general, what are the pros and cons of implementing the ABC system? (6 marks)
- (e) Would you recommend that a leading pharmaceutical company which produces a leading cancer treatment drug involving over 1,500 processes should use the ABC system? Explain. (2 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.

All numerical answers should be rounded to whole numbers if it is not specified in the question.

Question 3 (20 marks – approximately 36 minutes)

In running a business, managing the excessive cash and shortage of cash is essential for a business' sustainability.

Required:

- (a) What is the Miller-Orr Model? What is the rationale behind this model? (4 marks)
- (b) A company uses the Miller-Orr Model to manage its cash level. Suppose that the short-term securities yield 7% per year and it costs the company HK\$40,000 each time it buys and sells securities. The daily variance of cash flows is HK\$1 million and the bank requires a HK\$500,000 minimum current account balance. Assume 1 year consists of 365 days.

Required:

- Calculate the target cash balance. (4 marks)
- (c) Calculate the upper limit for the cash balance. (2 marks)
- (d) Draw a graph showing the upper limit and the lower limit. Briefly describe the actions that can be taken at the upper and lower limits. (4 marks)
- (e) Suggest THREE methods commonly used to improve the cash cycle. (6 marks)

Question 4 (20 marks – approximately 36 minutes)

In NPV analysis, Equivalent Annual Cost (EAC) is commonly used to evaluate the feasibility of a project.

Required:

- (a) In what situation should the Equivalent Annual Cost (EAC) be used? (3 marks)
- (b) A company is operating an old machine that will last 2 more years before it is discarded. It costs HK\$12,000 per year to operate. The company can replace the old machine with a new machine which costs HK\$25,000. The new machine is much more efficient and its operating cost is HK\$8,000 per year. Its useful life can last for 5 years. The cost of capital is 6%.

Required:

- (i) Calculate the annuity factor and show the formula. (2 marks)
- (ii) What is the equivalent annual cost of the new machine? (5 marks)
- (iii) Should the old machine be replaced by the new machine now? Explain your answer. (3 marks)
- (c) Point out TWO important assumptions in the calculation of part (b). (3 marks)
- (d) Besides the Equivalent Annual Cost (EAC) method, briefly describe any TWO non-discounting methods for investment appraisal. (4 marks)

Question 5 (20 marks – approximately 36 minutes)

PBE Airways has direct flights from Hong Kong to Nagoya (flight number PB100). It uses an aircraft which has a maximum capacity of carrying 350 passengers. The average round-trip ticket price for PB100 is HK\$5,000 per person. From PBE Airways' records, the average number of passengers for the round-trip flight PB100 is 250, and the average costs of this round-trip flight are as follows:

Fuel cost: HK\$525,000

Staff cost: HK\$225,000

Other costs: HK\$450,000

Required:

- (a) What is the average profit for the round-trip flight PB100 from Hong Kong to Nagoya?

(4 marks)

- (b) PBE Airways is exploring whether to extend the round-trip flight from Hong Kong to Nagoya with a stopover in Taipei (flight number PB200). PBE Airways expects that it could have additional revenue from cargo and passengers of HK\$130,000 from the round-trip segment of Taipei to Nagoya in PB200. The round-trip flight PB200 would have 275 passengers on average, and its average round-trip ticket price would be HK\$4,700. PBE Airways would need to pay an additional cost of HK\$150,000 for the stopover in this round-trip flight.

Required:

Assume the same aircraft and the average costs of the round-trip flight PB100 would also be used in PB200, what is the average profit for the round-trip flight of PB200 from Hong Kong to Nagoya with a stopover in Taipei?

(8 marks)

- (c) Based on the results in parts (a) and (b), is it worthwhile to extend the flight from Hong Kong to Nagoya with a stopover in Taipei?

(2 marks)

- (d) Point out TWO factors which may lead to an incorrect conclusion in part (c).

(4 marks)

- (e) Suggest ONE way to reduce staff costs for an airline.

(2 marks)

Question 6 (20 marks – approximately 36 minutes)

There are two major sources of financing: debt and equity. Companies have various considerations before they choose the source of finance.

A company has the following extracted financial information:

	<u>HK\$'000</u>
Earnings before interest and tax	1,000
Equity	20,000
Debt outstanding	10,000
Interest rate	6%

Assume there is no taxation for the company.

Required:

- (a) Which source of finance (debt or equity) is more expensive generally? Explain. (3 marks)
- (b) Calculate the Return on Equity of the company. (3 marks)
- (c) If the company decides to borrow another HK\$5 million with the same interest rate, calculate the revised Return on Equity. (3 marks)
- (d) Instead of borrowing another HK\$5 million, the company decides to raise the sum with equity and the number of shares outstanding will be 1.5 million.

Required:

- Calculate the revised Return on Equity. (4 marks)
- (e) Calculate the Debt/Equity ratios for:
- (i) the original case in part (b),
 - (ii) the raising debt case in part (c), and
 - (iii) the raising equity case in part (d).

Present your result by showing calculations in tabular format as follows:

	(i) Original Case	(ii) Raising Debt	(iii) Raising Equity
Debt/Equity Ratio			

(3 marks)

- (f) What is your suggestion regarding raising finance by debt or equity? Explain. (4 marks)

* * * END OF EXAMINATION PAPER * * *

Formula Sheet

Effective Annual Rate:

$$EAR = \left(1 + \frac{r}{m}\right)^m - 1 \quad EAR = e^r - 1$$

Present Values:

$$\text{Ordinary annuity: } PV = C \left(\frac{1 - (1+r)^{-T}}{r} \right) \quad \text{Growing annuity: } PV = \left(\frac{C_1}{r-g} \right) \left[1 - \left(\frac{1+g}{1+r} \right)^T \right]$$

$$\text{Constant perpetuity: } PV = \frac{C}{r} \quad \text{Growing perpetuity: } PV = \frac{C_1}{r-g}$$

IRR:

$$NPV = 0 = -C_0 + \frac{C_1}{(1+IRR)} + \frac{C_2}{(1+IRR)^2} + \frac{C_3}{(1+IRR)^3} + \dots + \frac{C_T}{(1+IRR)^T}$$

Expected Return, Variance, Covariance, and Correlation Coefficient:

$$\bar{R} = \sum_{i=1}^S p_i R_i \quad \sigma^2 = \sum_{i=1}^S p_i (R_i - \bar{R})^2 \quad \sigma_{AB} = \sum_{i=1}^S p_i (R_{Ai} - \bar{R}_A)(R_{Bi} - \bar{R}_B) \quad \rho_{AB} = \frac{\sigma_{AB}}{\sigma_A \sigma_B}$$

$$\bar{R}_p = X_A \bar{R}_A + X_B \bar{R}_B \quad \sigma_p^2 = X_A^2 \sigma_A^2 + X_B^2 \sigma_B^2 + 2X_A X_B \sigma_{AB}$$

Beta (or β):

$$\beta_j = \frac{\text{Cov}(R_j, R_M)}{\sigma_{R_M}^2}$$

Capital Structure - MM II (with corporate taxes):

$$r_s = r_0 + \frac{B}{S} (r_0 - r_B)(1 - T_c)$$

Miller-Orr Model

$$Z = [(3 \times TC \times V) / (4 \times R)]^{1/3} + L$$

$$H = 3Z - 2L$$

Present Value of \$1

Period	0.50%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
1	0.9950	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696
2	0.9901	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	0.7831	0.7695	0.7561
3	0.9851	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6750	0.6575
4	0.9802	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355	0.6133	0.5921	0.5718
5	0.9754	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674	0.5428	0.5194	0.4972
6	0.9705	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066	0.4803	0.4556	0.4323
7	0.9657	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	0.4251	0.3996	0.3759
8	0.9609	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039	0.3762	0.3506	0.3269
9	0.9561	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3075	0.2843
10	0.9513	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472
11	0.9466	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	0.2607	0.2366	0.2149
12	0.9419	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567	0.2307	0.2076	0.1869
13	0.9372	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	0.2042	0.1821	0.1625
14	0.9326	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046	0.1807	0.1597	0.1413
15	0.9279	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	0.1599	0.1401	0.1229
16	0.9233	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631	0.1415	0.1229	0.1069
17	0.9187	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456	0.1252	0.1078	0.0929
18	0.9141	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300	0.1108	0.0946	0.0808
19	0.9096	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161	0.0981	0.0829	0.0703
20	0.9051	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	0.0868	0.0728	0.0611

Present Value of Annuity of \$1

Period	0.50%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
1	0.9950	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696
2	1.9851	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257
3	2.9702	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832
4	3.9505	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550
5	4.9259	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048	3.5172	3.4331	3.3522
6	5.8964	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	3.9975	3.8887	3.7845
7	6.8621	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638	4.4226	4.2883	4.1604
8	7.8230	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873
9	8.7791	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	4.7716
10	9.7304	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188
11	10.6770	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337
12	11.6189	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944	5.9176	5.6603	5.4206
13	12.5562	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831
14	13.4887	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245
15	14.4166	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474
16	15.3399	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542
17	16.2586	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472
18	17.1728	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280
19	18.0824	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982
20	18.9874	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.9633	7.4694	7.0248	6.6231	6.2593
25	23.4456	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641
30	27.7941	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660
40	36.1722	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418
60	51.7256	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	9.0736	8.3240	7.6873	7.1401	6.6651
80	65.8023	54.8882	39.7445	30.2008	23.9154	19.5965	16.5091	14.2220	12.4735	11.0998	9.9951	9.0888	8.3324	7.6919	7.1427	6.6666
120	90.0735	69.7005	45.3554	32.3730	24.7741	19.9427	16.6514	14.2815	12.4988	11.1108	9.9999	9.0909	8.3333	7.6923	7.1429	6.6667
240	139.5808	90.8194	49.5686	33.3057	24.9980	19.9998	16.6667	14.2857	12.5000	11.1111	10.0000	9.0909	8.3333	7.6923	7.1429	6.6667

Future Value of \$1

Period	0.50%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	1.0050	1.0100	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000
2	1.0100	1.0201	1.0404	1.0609	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100
3	1.0151	1.0303	1.0612	1.0927	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310
4	1.0202	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116	1.4641
5	1.0253	1.0510	1.1041	1.1593	1.2167	1.2763	1.3382	1.4026	1.4693	1.5386	1.6105
6	1.0304	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771	1.7716
7	1.0355	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280	1.9487
8	1.0407	1.0829	1.1717	1.2668	1.3686	1.4775	1.5938	1.7182	1.8509	1.9926	2.1436
9	1.0459	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719	2.3579
10	1.0511	1.1046	1.2190	1.3439	1.4802	1.6289	1.7908	1.9672	2.1589	2.3674	2.5937
11	1.0564	1.1157	1.2434	1.3842	1.5395	1.7103	1.8983	2.1049	2.3316	2.5804	2.8531
12	1.0617	1.1268	1.2682	1.4258	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127	3.1384
13	1.0670	1.1381	1.2936	1.4685	1.6651	1.8856	2.1329	2.4098	2.7196	3.0658	3.4523
14	1.0723	1.1495	1.3195	1.5126	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417	3.7975
15	1.0777	1.1610	1.3459	1.5580	1.8009	2.0789	2.3966	2.7590	3.1722	3.6425	4.1772
16	1.0831	1.1726	1.3728	1.6047	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703	4.5950
17	1.0885	1.1843	1.4002	1.6528	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545
18	1.0939	1.1961	1.4282	1.7024	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171	5.5599
19	1.0994	1.2081	1.4568	1.7535	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417	6.1159
20	1.1049	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275
25	1.1328	1.2824	1.6406	2.0938	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.8347
30	1.1614	1.3478	1.8114	2.4273	3.2434	4.3219	5.7435	7.6123	10.0627	13.2677	17.4494
40	1.2208	1.4889	2.21	3.26	4.80	7.04	10.29	14.97	21.72	31.41	45.26
60	1.3489	1.8167	3.28	5.89	10.52	18.68	32.99	57.95	101.26	176.03	304.48
80	1.4903	2.2167	4.88	10.64	23.05	49.56	105.80	224.23	471.95	986.55	2048.40
120	1.8194	3.3004	10.77	34.71	110.66	348.91	1088.19	3357.79	10252.99	30987.02	92709.07
240	3.3102	10.8926	115.89	1204.85	12246.20	121739.57	1184152.57	11274742.82	105123864.28	960195145.04	8594971441.07

Period	11%	12%	13%	14%	15%
1	1.1100	1.1200	1.1300	1.1400	1.1500
2	1.2321	1.2544	1.2769	1.2996	1.3225
3	1.3676	1.4049	1.4429	1.4815	1.5209
4	1.5181	1.5735	1.6305	1.6890	1.7490
5	1.6851	1.7623	1.8424	1.9254	2.0114
6	1.8704	1.9738	2.0820	2.1950	2.3131
7	2.0762	2.2107	2.3526	2.5023	2.6600
8	2.3045	2.4760	2.6584	2.8526	3.0590
9	2.5580	2.7731	3.0040	3.2519	3.5179
10	2.8394	3.1058	3.3946	3.7072	4.0456
11	3.1518	3.4785	3.8359	4.2262	4.6524
12	3.4985	3.8960	4.3345	4.8179	5.3503
13	3.8833	4.3635	4.8980	5.4924	6.1528
14	4.3104	4.8871	5.5348	6.2613	7.0757
15	4.7846	5.4736	6.2543	7.1379	8.1371
16	5.3109	6.1304	7.0673	8.1372	9.3576
17	5.8951	6.8660	7.9861	9.2765	10.7613
18	6.5436	7.6900	9.0243	10.5752	12.3755
19	7.2633	8.6128	10.1974	12.0557	14.2318
20	8.0623	9.6463	11.5231	13.7435	16.3665
25	13.5855	17.0001	21.2305	26.4619	32.9190
30	22.8923	29.9599	39.1159	50.9502	66.2118
40	65.00	93.05	132.78	188.88	267.86
60	524.06	897.60	1530.05	2595.92	4384.00
80	4225.11	8658.48	17630.94	35676.98	71750.88
120	274635.99	805680.26	2341063.63	6738793.69	19219445.00
240	75424928785.77	649120673317.10	5480578920960.75	45411340363982.90	369387066182044.00

Future Value of Annuity of \$1

Period	0.50%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.0050	2.0100	2.0200	2.0300	2.0400	2.0500	2.0600	2.0700	2.0800	2.0900	2.1000
3	3.0150	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464	3.2781	3.3100
4	4.0301	4.0604	4.1216	4.1836	4.2465	4.3101	4.3746	4.4399	4.5061	4.5731	4.6410
5	5.0503	5.1010	5.2040	5.3091	5.4163	5.5256	5.6371	5.7507	5.8666	5.9847	6.1051
6	6.0755	6.1520	6.3081	6.4684	6.6330	6.8019	6.9753	7.1533	7.3359	7.5233	7.7156
7	7.1059	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004	9.4872
8	8.1414	8.2857	8.5830	8.8923	9.2142	9.5491	9.8975	10.2598	10.6366	11.0285	11.4359
9	9.1821	9.3685	9.7546	10.1591	10.5828	11.0266	11.4913	11.9780	12.4876	13.0210	13.5795
10	10.2280	10.4622	10.9497	11.4639	12.0061	12.5779	13.1808	13.8164	14.4866	15.1929	15.9374
11	11.2792	11.5668	12.1687	12.8078	13.4864	14.2068	14.9716	15.7836	16.6455	17.5603	18.5312
12	12.3356	12.6825	13.4121	14.1920	15.0258	15.9171	16.8699	17.8885	18.9771	20.1407	21.3843
13	13.3972	13.8093	14.6803	15.6178	16.6268	17.7130	18.8821	20.1406	21.4953	22.9534	24.5227
14	14.4642	14.9474	15.9739	17.0863	18.2919	19.5986	21.0151	22.5505	24.2149	26.0192	27.9750
15	15.5365	16.0969	17.2934	18.5989	20.0236	21.5786	23.2760	25.1290	27.1521	29.3609	31.7725
16	16.6142	17.2579	18.6393	20.1569	21.8245	23.6575	25.6725	27.8881	30.3243	33.0034	35.9497
17	17.6973	18.4304	20.0121	21.7616	23.6975	25.8404	28.2129	30.8402	33.7502	36.9737	40.5447
18	18.7858	19.6147	21.4123	23.414	25.645	28.132	30.906	33.999	37.450	41.301	45.599
19	19.8797	20.8109	22.8406	25.117	27.671	30.539	33.760	37.379	41.446	46.018	51.159
20	20.9791	22.0190	24.2974	26.870	29.778	33.066	36.786	40.995	45.762	51.160	57.275
25	26.5591	28.2432	32.0303	36.459	41.646	47.727	54.865	63.249	73.106	84.701	98.347
30	32.2800	34.7849	40.5681	47.575	56.085	66.439	79.058	94.461	113.283	136.308	164.494
40	44.1588	48.8864	60.4020	75.401	95.026	120.800	154.762	199.635	259.057	337.882	442.593
60	69.7700	81.6697	114.0515	163.053	237.991	353.584	533.128	813.520	1253.213	1944.792	3034.816
80	98.0677	121.6715	193.7720	321.363	551.245	971.229	1746.600	3189.063	5886.935	10950.574	20474.002
120	163.8793	230.0387	488.3	1123.7	2741.6	6958.2	18119.8	47954.1	128149.9	344289.1	927080.7
240	462.0409	989.2554	5744.4	40128.4	306130.1	2434771.5	19735859.6	161067740.3	1314048291.0	10668834933.8	85949714400.7

Period	11%	12%	13%	14%	15%
1	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.1100	2.1200	2.1300	2.1400	2.1500
3	3.3421	3.3744	3.4069	3.4396	3.4725
4	4.7097	4.7793	4.8498	4.9211	4.9934
5	6.2278	6.3528	6.4803	6.6101	6.7424
6	7.9129	8.1152	8.3227	8.5355	8.7537
7	9.7833	10.0890	10.4047	10.7305	11.0668
8	11.8594	12.2997	12.7573	13.2328	13.7268
9	14.1640	14.7757	15.4157	16.0853	16.7858
10	16.7220	17.5487	18.4197	19.3373	20.3037
11	19.5614	20.6546	21.8143	23.0445	24.3493
12	22.7132	24.1331	25.6502	27.2707	29.0017
13	26.2116	28.0291	29.9847	32.0887	34.3519
14	30.0949	32.3926	34.8827	37.5811	40.5047
15	34.4054	37.2797	40.4175	43.8424	47.5804
16	39.1899	42.7533	46.6717	50.9604	55.7175
17	44.5008	48.8837	53.7391	59.1176	65.0751
18	50.396	55.750	61.725	68.394	75.836
19	56.939	63.440	70.749	78.969	88.212
20	64.203	72.052	80.947	91.025	102.444
25	114.413	133.334	155.620	181.871	212.793
30	199.021	241.333	293.199	356.787	434.745
40	581.826	767.091	1013.704	1342.025	1779.090
60	4755.066	7471.641	11761.950	18535.133	29219.992
80	38401.025	72145.693	135614.927	254828.441	478332.529
120	2496681.8	6713993.8	18008174.1	48134233.5	128129626.7
240	685681170770.6	540933944300.8	42158299391998.1	324366716885585.0	2462580441213620.0

Answers

Paper II
PBE Management
Accounting and Finance
(June 2016 Session)

SECTION A (COMPULSORY) (Total: 40 marks)

Answer 1(a)

	<u>Macaroon</u>	<u>Chocolate</u>	<u>Vanilla Cream</u>
Production unit	500,000	800,000	600,000
Batch size	1,000	1,600	1,200
No. of batches	500	500	500
Oven hour/batch	1.5	1.5	1
Total oven hours used	<u>750</u>	<u>750</u>	<u>500</u>

	<u>Macaroon</u>	<u>Chocolate</u>	<u>Vanilla Cream</u>
No. of batches	500	500	500
Packaging machine hours	0.5	1	0.5
Total packaging machine hours used	<u>250</u>	<u>500</u>	<u>250</u>

Activity cost driver rates:

	<u>Amount</u>	<u>Total hours</u>	<u>Cost driver rate</u>
(i) Oven operation cost	HK\$2,000,000	2,000 (750+750+500)	HK\$1,000 per oven hour
(ii) General packaging overheads	HK\$1,500,000	1,000 (250+500+250)	HK\$1,500 per packaging machine hour

Answer 1(b)

	<u>Macaroon</u> HK\$	<u>Chocolate</u> HK\$	<u>Vanilla Cream</u> HK\$
Oven operation cost	1,500	1,500	1,000
General packaging overhead	<u>750</u>	<u>1,500</u>	<u>750</u>
Production overheads for each batch	<u>2,250</u>	<u>3,000</u>	<u>1,750</u>

Answer 1(c)

Forecast profit for each batch of cookies under the ABC system:

	<u>Macaroon</u> HK\$	<u>Chocolate</u> HK\$	<u>Vanilla Cream</u> HK\$
Revenue	9,000	12,000	7,200
Direct Materials	(2,000)	(2,400)	(1,680)
Direct Labour	(4,000)	(3,200)	(2,400)
Production Overhead	<u>(2,250)</u>	<u>(3,000)</u>	<u>(1,750)</u>
Profit	<u>750</u>	<u>3,400</u>	<u>1,370</u>

Answer 1(d)

Total production overhead for the year	HK\$3,500,000
Total labour hours for the year*	2,000
Production overhead/ labour hour	HK\$1,750

<u>Traditional</u>	<u>Macaroon</u>	<u>Chocolate</u>	<u>Vanilla Cream</u>
	HK\$	HK\$	HK\$
Revenue	9,000	12,000	7,200
Direct Materials	(2,000)	(2,400)	(1,680)
Direct Labour	(4,000)	(3,200)	(2,400)
Production Overhead	(3,500)	(1,750)	(1,750)
Profit/(Loss)	<u>(500)</u>	<u>4,650</u>	<u>1,370</u>

* Total labour hours = 500 x 2 + 500 x 1 + 500 x 1 = 2,000 hours

Answer 1(e)

Other than the ABC system, Cookie Master can use process costing since the manufacture of cookies involves many identical processes in mass production. On the other hand, if the cookies require specific requirements such as the printing of a cartoon on the surface for some orders, it may use job order costing.

Answer 2(a)

Over-costing would lead to over-pricing of the product and make it uncompetitive in the market. Opportunities may be lost and would lead to many arguments within an organisation.

Answer 2(b)

Under-costing can appear to enhance the competitiveness of a product but eventually the management will find that it is not really profitable or in fact is losing money.

Answer 2(c)

The two types of pricing are Cost based and Market based. Cost based pricing determines the price from the cost, for example, 10% over cost. Market based pricing determines the price of a product based on the competition in the market. If a product has more features and is better than its competitor, then it can be priced a bit higher.

Answer 2(d)

The ABC system can accurately estimate overheads but it is costly in its implementation. ABC requires the detailed assessment and recording of the uses of resources before overheads can be assigned accurately. This part is costly to set up and operate. The more activities that are involved, the higher the cost of its implementation.

Answer 2(e)

The ABC system is suggested not to be used in this case as it is too expensive to study the costs of each process.

If the company is producing one type of drug only, traditional costing can work quite well because each unit of drug consumes similar or identical resources. There is not cost benefit to use ABC.

* * * END OF SECTION A * * *

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

Answer 3(a)

The Miller-Orr Model is a commonly used technique in cash management. It is used to manage the situation of having excess cash or having a shortage of cash. When there is an excessive cash flow, the cash will be used to invest in short term securities. When there is a cash shortage, the short term securities will be sold.

Answer 3(b)

In the Miller-Orr Model, the Target Cash Balance is Z

$$Z = [(3 \times TC \times V) / (4 \times R)]^{1/3} + L$$

Now $R = 7\% / 365$, $TC = \text{HK\$}40,000$, $V = \text{HK\$}1,000,000$, $L = \text{HK\$}500,000$

$$Z = \text{HK\$}553,881.38$$

$$= \text{HK\$}553,881$$

Answer 3(c)

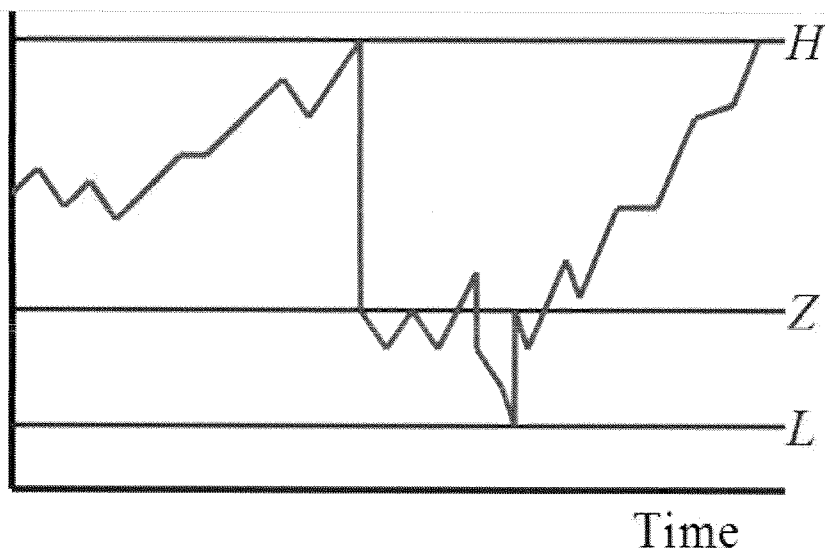
$$H = 3Z - 2L$$

$$= 3 \times \text{HK\$}553,881.38 - 2 \times \text{HK\$}500,000$$

$$= \text{HK\$}661,644.13$$

$$= \text{HK\$}661,644$$

Answer 3(d)



At point H where there is an excessive level of cash, the company makes use of the cash to invest in short term securities. At point L where there is a cash shortage, the company can sell short term securities to get cash.

Answer 3(e)

The management may consider to offer a discount to the customers to get early collection. To factor the accounts receivable is another way to get early collection, and finally, to obtain a credit limit from banks is a common method to improve cash flow.

Answer 4(a)

Equivalent Annual Cost (EAC) is used when an analysis is conducted on assets with different useful lives. When assets have the same useful lives, EAC is not used and we can just simply compare their Net Present Value (NPV). However, to deal with the different time-scales, the NPV of each replacement asset option should be converted into an annuity or an EAC.

Answer 4(b)(i)

$$\text{Annuity factor} = (1 - 1.06^{-5}) / 0.06 = 4.2124$$

Answer 4(b)(ii)

Year	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>Total</u>
	HK\$	HK\$	HK\$	HK\$	HK\$	HK\$	HK\$
New Machine	25,000	8,000	8,000	8,000	8,000	8,000	
PV	25,000	7,547	7,120	6,717	6,337	5,978	58,699
					Annuity factor		4.212
					EAC		13,936

Answer 4(b)(iii)

Since the equivalent annual cost (EAC) of the new machine is HK\$13,936 which is higher than the current annual operating cost of HK\$12,000, the old machine is not replaced.

Answer 4(c)

It is assumed that the same cost of capital is applied for both the old and new machines. If a different cost of capital is used, it will lead to a different result. Also, it is assumed that the operating cost is accurate. If it is not an accurate estimate, it will again lead to a different conclusion.

(Any other relevant assumptions are acceptable).

Answer 4(d)

In addition to a discounting method like the EAC, there are several non-discounting methods. One of which is the payback period. This determines how many years are needed to pay back the original investment. Another non-discounting method is average accounting returns. This calculates the return from an investment based on projected financial statements.

Answer 5(a)

<u>Hong Kong/Nagoya (PB100)</u>	HK\$	HK\$
Revenue (250 x \$5,000)		1,250,000
Cost: Fuel cost	(525,000)	
Staff cost	(225,000)	
Other costs	<u>(450,000)</u>	
Total costs		<u>(1,200,000)</u>
Profit for flight PB100		<u><u>50,000</u></u>

Answer 5(b)

<u>HK/Taipei/Nagoya (PB200)</u>	HK\$	HK\$
Revenue from HK/Nagoya (\$4,700 x 275)	1,292,500	
Additional revenue from Taipei/Nagoya	<u>130,000</u>	
Total revenue		1,422,500
<u>Cost (HK/Taipei/Nagoya)</u>		
Fuel cost	(525,000)	
Staff cost	(225,000)	
Other costs	<u>(450,000)</u>	
	(1,200,000)	
Additional cost	<u>(150,000)</u>	
Total costs		<u>(1,350,000)</u>
Profit for flight PB200		<u><u>72,500</u></u>

Answer 5(c)

Based on the results in parts (a) and (b), since it has a higher profit with the stopover than the flight directly fly from Hong Kong to Nagoya, it is suggested to "further process" (fly) the route from Taipei to Nagoya.

Answer 5(d)

There is no business class in the calculation and the cost of running business class is much higher though its revenue is also higher. In addition, the cost structure for a route with a stopover may be different from a direct flight. For example, staff costs for a direct flight may be lower with less hours to be worked by the staff.

(Other valid answers are acceptable).

Answer 5(e)

An online system and automation may be used to reduce the level of staff involved. This can reduce staff costs.

(Other valid answers are acceptable).

Answer 6(a)

Equity financing is usually more expensive than debt financing as shareholders demand a higher return than creditors.

Answer 6(b)

	<u>HK\$'000</u>
Earnings before interest and tax	1,000
Equity	20,000
Debt outstanding	10,000
Interest rate	6%
EBIT	1,000
Interest	<u>600</u>
EBT	400
ROE ($\$400,000 / \$20,000,000$)	<u>2%</u>

Answer 6(c)

	<u>HK\$'000</u>
<u>Revised (Raising Debt)</u>	
Earnings before interest and tax	1,000
Equity	20,000
Debt outstanding	15,000
Interest rate	6%
EBIT	1,000
Interest	<u>900</u>
EBT	100
ROE ($\$100,000 / \$20,000,000$)	<u>0.5%</u>

Answer 6(d)

<u>Revised (Raising Equity)</u>	<u>HK\$'000</u>
Earnings before interest and tax	1,000
Equity	25,000
Debt outstanding	10,000
Interest rate	6%
EBIT	1,000
Interest	600
EBT	<u>400</u>
ROE (\$400,000 / \$25,000,000)	<u>1.6%</u>

Answer 6(e)

	(i) Original Case	(ii) Raising Debt	(iii) Raising Equity
Debt/Equity Ratio	$\frac{10,000,000}{20,000,000} = 50\%$	$\frac{15,000,000}{20,000,000} = 75\%$	$\frac{10,000,000}{25,000,000} = 40\%$

Answer 6(f)

Raising finance using equity can reduce the debt/equity ratio but it also reduces the return on equity. On the other hand, raising finance using debt can increase the debt/equity ratio but it can also reduce the return on equity.

* * * END OF EXAMINATION PAPER * * *

Reference:

Pauline H.Y. Ho, Joseph S.W. Yau, PBE Paper II Management Accounting and Finance,
Pearson 2014

Note: The suggested answers given above are much longer and in greater detail than the ones expected of candidates in the examination. The purpose of the suggested answers is meant to help candidates in their revision and learning. Also, these suggested answers may not include all valid points of each question. Credit should be given to candidates who give valid answers to the questions.

Examination Panelist's Report

Paper II
PBE Management
Accounting and Finance
(June 2016 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 very well in this session. Their performance proved that they were able to master the basic concept of management accounting but could improve further in applying their knowledge to solve application problems in Activity Based Costing (ABC). In the part "Finance", though Equivalent Annual Cost (EAC) is not an easy topic, candidates were expected to use it for simple application.

Specific Comments

Section A – Compulsory Questions

Question 1 – 20 marks

This question tested candidates' abilities in analysing a case on Activity Based Costing in a cookie company. Many candidates failed in understanding the details in the case and applying them to calculate the cost driver rate. As such, most candidates provided wrong answers in this question. Candidates were not familiar with the traditional method in calculating the overheads for each product. If candidates could master and apply the basic concept of costing methods well, they could get high scores in this question. It is suggested that while learning management accounting, candidates should have a good general picture of the cost allocation.

Question 2 – 20 marks

This question tested candidates' knowledge in understanding the relationship between costing and pricing. The performance was fair. Some candidates failed in terms of knowing the consequence of overcosting and undercosting and mixed up these two situations. In parts (d) and (e), the pros and cons of ABC were asked for. The question aimed to arouse students' awareness of the limitations of ABC.

Section B – Optional Questions

Question 3– 20 marks

This was a well-answered question. It assessed candidates' understanding of the Miller-Orr Model and the management of cash. Most candidates showed their good mastering of this topic and its application.

Question 4 – 20 marks

This question was poorly answered. It tested candidates' understanding of the Equivalent Annual Cost (EAC). EAC is used when comparing of assets of different lives is required. It is an important application in Net Present Value analysis. The question indeed guided candidates on a step-by-step basis to arrive at the answer but only few candidates attempted this question.

Question 5 – 20 marks

This question was the most popular elective question and the performance was very good. It was a practical problem on "further processing" by using a flight from Hong Kong to Taipei then to Nagoya. Most candidates could draw the correct conclusion from the data given. In part (e), candidates were asked to suggest one way to reduce staff costs. The majority of the candidates gave a simple answer such as firing staff, hiring interns or employing fewer staff. While these answers were acceptable in most industries, the airline industry has safety issues that these suggestions may not be applicable. Candidates were not expected to be an expert in aviation but general knowledge is required before proposing a solution fitting the background of the question.

Question 6 – 20 marks

This question tested candidates' ability in distinguishing different sources of finance and their implications. Sources of finance concerning the right hand side of the accounting equation. It is indeed a hot topic in financial accounting and financial management. The performance of this question was fair, but some candidates still could not understand that equity is more expensive than debt.

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

