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

Professional Bridging Examination

Pilot Examination Paper

Paper II
PBE Management Accounting and Finance

Questions & Answers Booklet

The suggested answers given in this booklet are purposely made to give more details for educational purpose.

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Paper II
PBE Management Accounting and Finance

Pilot Paper (Questions)

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

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. Both questions 1 and 2 are related to this case.*

CASE

Kambo Corporation has a P Division that does work for other Divisions in the company as well as for outside customers. The company's E Division has asked P Division to provide it with 10,000 special parts each year. The special parts would require $12.00 per unit in variable production costs.

E Division receives a bid from an outside supplier for the special parts at $31.00 per unit. To allow more time and space to produce the special part, P Division needs to cut back production of another part—the MW3 that presently it is producing. The MW3 sells for $35.00 per unit, and requires $13.00 per unit in variable production costs. Packaging and shipping costs of the MW3 are $3.00 per unit. Packaging and shipping costs for the new special part would be only $2.00 per unit. P Division is now producing and selling 50,000 units of the MW3 each year. Production and sales of the MW3 would drop by 10% if the new special part is produced for E Division.

Kambo also adopts Activity Based Costing (ABC) in its production budget. There are three activity cost pools in one division and the details are shown in the following table.

	HK$
Wages and salaries	660,000
Travel expenses	180,000
Other expenses	160,000
Total	1,000,000

Distribution of resource consumption:

	Activity Cost Pools			
	Engagements	Business Development	Other	Total
Wages and salaries	40%	30%	30%	100%
Travel expenses	60%	30%	10%	100%
Other expenses	30%	30%	40%	100%

Question 1 **(20 marks – approximately 36 minutes)**

You are the management accountant of Kambo Corporation. The CEO has asked you to offer advice on the transfer price and ABC issues.

Required:

(a) **What is the range of transfer prices within which both the Divisions' profits would increase as a result of agreeing to the transfer of 10,000 special parts per year from P Division to E Division?**

(10 marks)

(b) **Is it in the best interests of Kambo Corporation for this transfer to take place? Explain your decision.**

(4 marks)

(c) **What is Activity-Based Costing (ABC)? How much cost, in total, should be allocated to Kambo Corporation's Activity Cost Pools? Present your answer in tabular form.**

(6 marks)

Question 2 **(20 marks – approximately 36 minutes)**

To cope with the booming market, Kambo Corporation is considering an expansion project to build a plant with initial cost of fixed assets of $50,000 which can create operating cash inflows of $22,500 a year for three years and the assets will be worthless at the end of the project. To invest in this project, an additional $3,000 of net working capital will be required at the beginning of the project and is released after it is finished. The company adopts a required rate of return of 12% in its projects.

Required:

(a) **What is the project's net present value (NPV) if the required rate of return is 12%?**

(10 marks)

(b) **Explain the weaknesses of the NPV analysis in (a) above.**

(6 marks)

(c) **Briefly describe two non-discounted cash flow analyses.**

(4 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)

Good Sleep operates a small hotel in Guangzhou. Depreciation on the hotel is $60,000 per year. Good Sleep employs a maintenance staff member at an annual salary of $32,000 and a cleaning staff member at an annual salary of $24,000. Real estate taxes are $7,375 per year. The rooms rent at an average price of $60 per person per night including breakfast. Other costs are laundry and cleaning services at a cost of $8.00 per person per night and the cost of food which is $5.00 per person per night.

Required:

(a) Determine the number of rentals and the sales revenue Good Sleep needs to break even.

(5 marks)

(b) If the current level of rentals is 3,000, by what percentage can rentals decrease before Good Sleep has to worry about having a net loss? What is the name of this measure? Is the higher value of such a measure better or is the lower value of such a measure better? Illustrate your answers by using the above figures.

(5 marks)

(c) Good Sleep is considering upgrading the breakfast service to attract more business and increase prices. This will require an additional $2.00 for food costs per person per night. Good Sleep feels they can increase the room rate to $65 per person per night. Determine the number of rentals and the sales revenue Good Sleep needs to break even if the changes are made.

(5 marks)

(d) Break-even analysis is useful in budgeting and planning. What are the underlying assumptions under the break-even model?

(5 marks)

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

In investment markets, there are two types of risk: systematic risk and unsystematic risk. Various tools have been developed in the market to measure these types of risk.

Required:

(a) **Distinguish between systematic risk and unsystematic risk.**

(4 marks)

(b) **What is the parameter used to measure systematic risk?**

(1 mark)

(c) **What is the measure used to measure total risk?**

(1 mark)

(d) **Briefly explain the THREE important ranges (=1, >1, < 1) of the measure in (b).**

(6 marks)

(e) **Bank C is listed in a stock market Y. You are provided with the following information and average annual returns:**

Index of stock market Y	**14%**
Large company stock	**10%**
Small company stock	**16%**
Yield rate of Corporate Bond	**4%**
Risk free rate	**3%**
Beta of shares of Bank C	**0.9**
10-day average of share prices of Bank C	**$116**
20-day average of share prices of Bank C	**$120**

Calculate the expected return of the shares of Bank C.

(5 marks)

(f) **In practice, by referring to a graphical method, illustrate how you can derive beta of a stock.**

(3 marks)

Question 5 (20 marks – approximately 36 minutes)

Different companies have different capital structures and we may deduct them from the financial statements. In fact, when companies need capital, there are various forms. The capital structure has an influence on the stock prices and its Weight Average Cost of Capital (WACC) is often used to evaluate project feasibility.

Required:

(a) Identify various forms of capital and explain the normal priority of financing?
(4 marks)

(b) The balance sheet (extracts) of Multiple Company Limited as at 31 December 2007 is shown below

Multiple Company Limited
Partial Balance Sheet (Extracts)
as at 31 Dec 2007

Long term Liability	
Bond	**$250,000**
Equity	
10,000 shares issued and outstanding (par = $1)	**$10,000**

Common stock has a market price of $30 per share. Multiple Company Limited just paid a dividend of $2.019 per share and it is expected to grow at 4% per year. The bond is being sold at 102% of face value and the pre-tax cost of debt is 8%. The firm has a beta of 1.1 and a tax rate of 20%. What is its Weighted Average Cost of Capital (WACC)?
(10 marks)

(c) Explain "Residual Dividend Policy". What types of companies are expected to use this policy?
(6 marks)

Question 6 (20 marks – approximately 36 minutes)

(a) Welly has budgeted sales revenues as follows:

	Budgeted Sales Revenues ($M)
July	$55
August	75
September	90
October	60
November	45
December	35

Past experience has indicated that 80% of sales each month are on credit and that the collection of credit sales occurs as follows: 60% in the month of sale, 30% in the month following the sale, and 5% in the second month following the sale. The other 5% is uncollectible.

Required:

(i) Prepare a schedule which shows expected cash receipts from sales for the months of October, November and December.

(8 marks)

(ii) Suggest TWO ways companies can speed up collection and reduce bad debt percentage.

(4 marks)

(b) Describe the concept of Balanced Scorecard and its application. Suggest one measure for each category.

(8 marks)

* * * END OF EXAMINATION PAPER * * *

Formula Sheet

Effective Annual Rate*:*

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

Present Values:

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

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

IRR:

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

Expected Return, Variance, Covariance, and Correlation Coefficient:

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

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

Beta (or β):

$$\beta_i = \frac{Cov(R_i, R_M)}{\sigma_{R_M}^2}$$

Capital Structure - MM II (with corporate taxes):

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

Normal Distribution:

$Z = (\bar{x} - \mu)/ \sigma /\sqrt{n}$

t-distribution:

$t_{n-1} = (\bar{x} - \mu)/ S /\sqrt{n}$

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	454113403639 82.90	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	50.9804	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	5409338944300.8	42158299391998.1	324366716885585.0	2462580441213620.0

Answers

Paper II
PBE Management Accounting and Finance
(Pilot Paper)

SECTION A (COMPULSORY) (Total: 40 marks)

Answer 1(a)

From P Division's perspective, profits would increase as a result of the transfer if

Transfer price › Variable cost + Opportunity cost

The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred:

Opportunity cost = [($35.00-$13.00-$3.00)×5,000*]/10,000 = $9.50
* 10%×50,000 = 5,000

Transfer price › ($12.00+$2.00)+$9.50 = $23.50.

From E Division's perspective, the transfer price must be less than the cost of buying the units from the outside supplier. Transfer price ‹ $31.00.

Combining the two requirements, we have the following range of transfer prices: $23.50 ‹ Transfer price ‹ $31.00.

Answer 1(b)

Yes, the transfer should take place. From the entire company's viewpoint, the cost of transferring the units within the company is $23.50, but the cost of purchasing the special parts from the outside supplier is $31.00. Therefore, the company's profits increase on average by $7.50 for each of the special parts that is transferred within the company, even though this would cut into production and sales of another product.

Answer 1(c)

ABC is a management accounting information system. It identifies various activities performed in a company. It collects costs according to the nature and extent of those activities, and assigns costs to products/services based on these activities.

	Engagements	*Business Development*	*Other*	*Total*
Wages and salaries	$264,000	$198,000	$198,000	$660,000
Travel expenses	108,000	54,000	18,000	180,000
Other expenses	48,000	48,000	64,000	160,000
Total	$420,000	$300,000	$280,000	$1,000,000

Answer 2(a)

Year	0	1	2	3
Initial cost	(50,000.0)			
OCF		22,500.0	22,500.0	22,500.0
NWC	(3,000.0)			3,000.0
Total	(53,000.0)	22,500.0	22,500.0	25,500.0
PV (r=12%)	(53,000.0)	20,089.3	17,936.9	18,150.4

NPV = $3,176.6 > 0, the project should proceed based on the above financial considerations.

Answer 2(b)

The discount rate is subject to a high degree of subjectivity. It is arguable that the discount rate is determined by many factors and there are many approaches in such a determination. One popular approach is the Weighted Average Cost of Capital (WACC). Again, it involves the estimation of the cost of equity and cost of debt which require input at a risk-free rate, Beta, market rate of return.

The cash flow is an estimate. Cash flows come from the estimation from revenues and expenses. Revenues are generated from price and quantity. Expenses could be variable and fixed. All these parameters are subject to a high degree of uncertainty.

The period of investment is again a subjective figure. That is why a certain time-frame is used and why project analysts only consider a 3-year period as shown above but not a 5-year or 10-year period. If a 3-year period is chosen, cash flows after the third year will be ignored and will affect the results greatly.

Answer 2(c)

The payback period and accounting rate of return are two non-discounted methods.

The payback period measures how long it takes to recover the initial investment. Cash flow after payback will not be considered.

The accounting rate of return measures the accounting profit divided by the average investment to see if it exceeds some pre-determined return rate. The profit is not cash flow and is subject to earnings management.

* * * END OF SECTION A * * *

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

Answer 3(a)

Variable costs per person per night:		Fixed costs:	
Laundry and cleaning	$ 8.00	Depreciation	$ 60,000
Breakfast	5.00	Maintenance	32,000
Total variable costs	$13.00	Cleaning	24,000
		Real estate tax	7,375
		Total fixed costs	$123,375

Break-even number of persons per night rentals:

$$\frac{\text{Fixed costs}}{\text{Contribution margin per person per night}} = \frac{\$123,375}{\$47} = 2,625 \text{ rentals}$$

Sales price per unit	$60.00
Variable cost per unit	13.00
Contribution margin per unit	$47.00

Break-even sales in dollars = 2,625 x $60 = $126,000

Answer 3(b)

This concept is called Margin of safety:

$$\frac{\text{Actual rentals} - \text{Break–even rentals}}{\text{Actual rentals}} = \frac{(3,000 - 2,625)}{3,000} = 12.5\%$$

The higher value of this measure is better as the higher value means there is a high cushion the actual sales differ from expected sales and it is still break-even. In the above case, break-even sales are 2,625 rentals and the actual sales are 3,000 rentals. The difference is 375 rentals. Actual sales can decrease by this amount before they pass the break-even point and become a loss.

Answer 3(c)

Variable costs per person per night:		Fixed costs:	
Laundry and cleaning	$ 8.00	Depreciation	$ 60,000
Breakfast ($5+$2)	7.00	Maintenance	32,000
Total variable costs	$15.00	Cleaning	24,000
		Real estate tax	7,375
		Total fixed costs	$123,375

Break-even number of persons per night rentals:

$$\frac{\text{Fixed costs}}{\text{Contribution margin per person per night}} = \frac{\$123{,}375}{\$50^*} = 2{,}467.5 \text{ rentals}$$

Sales price per unit ($60+$5)	$65
Variable cost per unit	15
Contribution margin per unit	$50*

Break-even point in sales dollars: 2,467.5 × $65 = $160,387.5

Answer 3(d)

There are various assumptions under the break-even analysis. The validity of the result depends on whether such assumptions are satisfied:

- Costs and revenue change linearly
- Costs can be classified either as fixed or variable
- Change in activity are the only factors that affect costs
- All units produced are sold
- When there is more than one type of product sold, the sales mix is constant
  (Note: there is no sales mix here as Good Sleep only sells one type of room)

Answer 4(a)

Systematic risk refers to a broader type of risk which cannot be diversified away. It is also called undiversifiable risk. Examples include inflation and change in interest rate.

Unsystematic risk refers to specific risk which can be diversified away. It is also called diversifiable risk. Examples include strikes by company workers and the resignation of the CEO.

Answer 4(b)

Beta coefficient is used to measure systematic risk.

Answer 4(c)

Standard deviation is used to measure total risk.

Answer 4(d)

Beta has three important ranges and each range carries a different meaning.

- Beta greater than 1 implies that it is more risky than the market.
- Beta equal to 1 implies that the stock moves in line with the market.
- Beta less than 1 implies that the stock is less risky than the market.

Answer 4(e)

Using CAPM, expected return = $r_f + (r_m - r_f)$x Beta
= 3% + 0.9 * (14%-3%) = 12.9%.

Answer 4(f)

In practice, we may plot a graph with the return of the stock market as the X-axis and the return of stock C as the Y-axis. The graph shows Beta of C. However, there are arguments on the length of time of the observations and the frequency of the observations.

Answer 5(a)

There are mainly three sources of capital a company can use: retained earnings, debt and equity. A company is usually financed firstly by retained earnings, then by debt and finally by equity issued. Retained earnings come from accumulated profit. If a company raises capital from retained earnings, it will not affect important financial ratios like debt ratio and EPS.

The second source is usually through debt. Retained earnings may not be sufficient to finance large-scale projects and debt or share issuance are good alternatives. Debt issuance is comparatively cheaper than share issuance. This is evidenced from the process involved in the issuances. Share issuances are far more complicated and lengthy. Major concerns on debt issuance or share issuance are their impact on the debt ratio and EPS. In addition, share issuance may signal to the market that the company already has a high level of debt and cannot borrow more.

Answer 5(b)

Cost of equity Re is found by using the dividend growth model:

P = D1/(Re-g) where P=$30, D1=$2.019 x (1+4%) and g = 4% hence Re =11%

			MV	Cost	WACC
Stock	10,000	30	$300,000	11%	5.95%
Bond	250,000	102	$255,000	8%	2.94% after tax
			$555,000		8.89%

Answer 5(c)

Residual dividend policy means that dividend is only distributed to shareholders after the current year's profit has financed a positive NPV project in the targeted debt/equity ratio. If there is nothing left, no dividend will be distributed. Contrary to constant dividend payout policy, companies in an expansion phase looking for a positive NPV investment project will use a residual dividend policy.

Answer 6(a)(i)

(in $'M)

		Cash Receipts		
Month	Description	October	November	December
August	Credit sales	3.0		
September	Credit sales	21.6	3.6	
October	Credit sales	28.8	14.4	2.4
	Cash sales	12.0		
November	Credit sales		21.6	10.8
	Cash sales		9.0	
December	Credit sales			16.8
	Cash sales			7.0
Total cash receipts		$65.4	$48.6	$37.0

Answer 6(a)(ii)

Speeding up cash flow collection is important to the operation of a company. Without sufficient cash flow, a company needs to borrow money and increase its interest expenses. A company can speed up collection of receivables and reduce the percentage of bad debt percentage by one of the following ways:

- Assess the creditability of the customers beforehand.
- Give discount to customers who pay earlier.
- Take active steps in reminding customers to pay on time.
- Closely monitor the receipt pattern of the customers.

Answer 6(b)

Balanced Scorecard provides a more balanced way to evaluate the performance of a company other than the historical accounting performance. It consists of four perspectives:

- Financial perspective assesses a company's financial performance.
- Internal Business Processes perspective measures its operational effectiveness.
- Customer perspective determines its customer satisfaction.
- Innovation and Learning perspective reflects how a company learns or grows.

The financial perspective can be measured by various financial ratios such as return on equity (ROE). The Internal Business Processes perspective can be measured in terms of customers' waiting time. Customer satisfaction can be determined through market share and Innovation and Learning can be evidenced by the number of training courses offered in a year.

* * * END OF EXAMINATION PAPER * * *