

Examination for the Degree of MA

QB3002 – Management Accounting 3

Wednesday 1<sup>st</sup> July 2020, 15:00 – Deadline: Wednesday 8<sup>th</sup> July 2020, 15:00

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Where a question is in several parts, the percentage or marks indicated shows the proportion of time you may wish to spend on that part. Each question makes an equal contribution to the final grade.

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Taking photographs of hand-written answers, imported into a WORD document and uploaded will be allowed for QB3002. However, there are risks and important things to consider:

- (1) you can ONLY upload ONE document as your answer;
- (2) submitting a CLEAR PHOTO which is in-focus with good lighting and not missing any of your answers is YOUR RESPONSIBILITY (similar to you submitting good handwriting in a “normal exam”). IF we cannot read it, we CANNOT mark it... You are strongly advised to practise doing this before the exam... probably best to use a black pen, not pencil...
- (3) please LABEL all your answers with the exam question number so it is CLEAR TO STAFF what question (and sub question) you are answering; and
- (4) typed answers for written (non-number) questions is still best for us to mark.

**Section A: Answer only one question**

Each question is worth 30 marks

**QUESTION 1**

Outline the main features of the Balanced Scorecard and discuss how the CIMA Strategic Scorecard differs from it.

(30 marks)

**QUESTION 2**

Kirk Components is a member of the Crichton Group of companies. Kirk Components supplies parts to Melville Castle, another company in the Crichton Group, as well as selling to its external market. Kirk Components has the capacity to produce up to 50,000 units of output per week. The external market demand is 35,000 units per week, and Melville Castle demands 10,000 units per week. Crichton Group company policy is to set transfer prices that will encourage the maximization of group profits and to evaluate the performance of group companies on the basis of their individual profits.

**Required**

Prepare a report to the group Management Team outlining how an appropriate transfer pricing policy would provide a satisfactory basis for appraising the performance of the individual companies. Comment on the implications of this policy for the maximization of group profits.

(30 marks)

**SECTION B: ANSWER ANY TWO QUESTIONS**

**QUESTION 3**

Acutech acoustics is a hi-fi company that manufactures audio components of the highest quality. Its reputation has grown in recent years along with its international presence. The company now has four international divisions: Americas, Europe, Asia, and Africa. The company's board would like to understand more about the performance of each of the divisions. Acutech's financial data is as follows:

**Acutech Audio**

Division	Americas	Europe	Asia	Africa	Group
Current assets:	£1,200,000	£960,000	£1,680,000	£480,000	£4,320,000
Long-term assets:	£2,000,000	£1,200,000	£2,800,000	£900,000	£6,900,000
Total assets:	£3,200,000	£2,160,000	£4,480,000	£1,380,000	<u>£11,220,000</u>
Current liabilities:	£1,000,000	£750,000	£1,200,000	£400,000	£3,350,000
Long term debt					£3,870,000
Shareholder's equity					£4,000,000
Total liabilities and equity					<u>£11,220,000</u>
Revenues	£3,250,000	£2,600,000	£4,225,000	£1,300,000	£11,375,000
Variable Costs	£1,300,000	£1,170,000	£1,560,000	£494,000	£4,524,000
Fixed Costs	£1,600,000	£1,120,000	£1,600,000	£512,000	£4,832,000
Operating Profit	£350,000	£310,000	£1,065,000	£294,000	£2,019,000

Notes:

1. Acutech has a required rate of return of 10%.
2. Acutech's sources of long-term funds are long-term debt and Shareholders equity.
3. The book and market values of the long-term debt are the same and the interest rate is 10%.
4. Acutech does not allocate its long-term debt to its divisions.
5. Acutech has 1,000,000 shares in issue and the share price at the time of analysis is £4.00.
6. Acutech's cost of equity capital is 12%.
7. Acutech is paying tax at 30%.

**Required:**

(a) Rounding to two decimal places where appropriate, calculate the following for Acutech:

- i. The Return on Investment
- ii. The Residual Income
- iii. The economic Value Added

(25 marks)

(b) Produce a ranking of the divisions showing the performance of each, for each measure.

(5 marks)

(c) Discuss the ranking and the performance of the divisions.

(5 marks)

(Total 35 marks)

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#### QUESTION 4

Zedlight is a company that produces engineering components for the oil industry. A steel collar used on oil drilling rigs is Zedlight's main product and is sold through the company's website. It is called product Z. The following is budgeted production information for product Z:

<b>Standard cost card for product Z</b>					
	<u>Cost/unit</u>	<u>Quantity</u>	<u>Unit</u>	<u>Total</u>	
Direct material	£ 25.00	4	kg.	£	100.00
Direct labour	£ 16.00	6	hrs.	£	96.00
Variable overheads	£ 22.00	6	hrs.	£	132.00
				£	<u>328.00</u>

Planned production for November (units)	800
Periods in year	12
Annual budgeted fixed overheads	£ 1,656,000
Budgeted selling price	£ 600.00

At the end of November, the following actual production data was recorded and supplied by the production manager:

#### **Actual results for November**

Actual production units	904
Actual sales for November	£ 553,248

<u>Actual production costs</u>	<u>Units</u>	<u>Price/cost</u>	<u>Total</u>	
Direct material	3,688	£ 24.50	£	90,356
Direct labour	5,260	£ 16.80	£	88,368
Variable overheads			£	118,135
Fixed overheads			£	150,420
Total cost for November			£	<u>447,279</u>

#### **Required:**

- Calculate the actual profit and both the original and flexed budgets of product Z for the month of November. (5 marks)
- Using variances, reconcile the standard cost of the production of product Z in November with the actual cost of its production. (11 marks)
- Comment on the variances that you have produced. (8 marks)
- Discuss the appropriateness of using budgetary targets as a way for the production manager to achieve a bonus. (11 marks)

(Total 35 marks)

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#### QUESTION 4

Davidson PLC is an oven manufacturer. One relevant part of the oven is a stove. Davidson PLC purchases a unit of stoves per £10. The demand of stoves per year is 13,000 with a weekly demand of 250 stoves. The purchase-order lead time is 2 weeks. In addition, the relevant ordering cost per order is £200 and the relevant carrying cost per stove per year is £5.20.

Davidson PLC works with two departments: Manufacturing and installation. Manufacturing department can manufacture 14,000 ovens per year but the installation department can only install 13,000 ovens per year. That is the reason why Davidson PLC limits its production to 13,000 ovens per year. Each unit of oven sells for £150 and the direct materials per oven cost £70 (there are no other variable costs).

The CEO from Davidson PLC heard about a training that motivates workers from the manufacturing department to improve their productivity. The training costs £15,000. The CEO was also offered a new technique for oven installations which would install 1,000 additional units per year and it would cost £ 50,000 per year.

The CEO from Davidson PLC came to your office for advice on level of stoves to stock. He also wants to hear your opinion on whether or not to take training offered as well as implementing the new installation technology.

#### REQUIRED:

- (a) Calculate the economic order quantity. (3 marks)
- (b) Calculate the annual relevant costs. (6 marks)
- (c) Calculate number of deliveries in the time period. (2 marks)
- (d) Define JIT production system and mention four advantages of it. (8 marks)
- (e) Advise the CEO on whether or not he should take the training to the manufacturing department. Explain the reason of your advice with calculations. (8 marks)
- (f) Advise the CEO on whether or not he should implement the new installation technology. Explain the reason of your advice with calculations. (8 marks)

**(Total 35 Marks)**

## DISCOUNT RATE

Periods	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.769	0.756
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613	0.592	0.572
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567	0.543	0.519	0.497
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507	0.480	0.456	0.432
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452	0.425	0.400	0.376
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376	0.351	0.327
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333	0.308	0.284
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295	0.270	0.247
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287	0.261	0.237	0.215
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231	0.208	0.187
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204	0.182	0.163
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.205	0.181	0.160	0.141
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160	0.140	0.123
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.141	0.123	0.107
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125	0.108	0.093
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111	0.095	0.081
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164	0.138	0.116	0.098	0.083	0.070
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087	0.073	0.061
21	0.811	0.660	0.538	0.439	0.359	0.294	0.242	0.199	0.164	0.135	0.112	0.093	0.077	0.064	0.053
22	0.803	0.647	0.522	0.422	0.342	0.278	0.226	0.184	0.150	0.123	0.101	0.083	0.068	0.056	0.046
23	0.795	0.634	0.507	0.406	0.326	0.262	0.211	0.170	0.138	0.112	0.091	0.074	0.060	0.049	0.040
24	0.788	0.622	0.492	0.390	0.310	0.247	0.197	0.158	0.126	0.102	0.082	0.066	0.053	0.043	0.035
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092	0.074	0.059	0.047	0.038	0.030
26	0.772	0.598	0.464	0.361	0.281	0.220	0.172	0.135	0.106	0.084	0.066	0.053	0.042	0.033	0.026
27	0.764	0.586	0.450	0.347	0.268	0.207	0.161	0.125	0.098	0.076	0.060	0.047	0.037	0.029	0.023
28	0.757	0.574	0.437	0.333	0.255	0.196	0.150	0.116	0.090	0.069	0.054	0.042	0.033	0.026	0.020
29	0.749	0.563	0.424	0.321	0.243	0.185	0.141	0.107	0.082	0.063	0.048	0.037	0.029	0.022	0.017
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057	0.044	0.033	0.026	0.020	0.015

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