



**BERJAYA BUSINESS SCHOOL**

**FINAL EXAMINATION**

Student ID (in Figures) : 

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Student ID (in Words) : \_\_\_\_\_  
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Course Code & Name : **ACC5104 MANAGEMENT CONTROL & COSTING SYSTEM**  
Trimester & Year : JANUARY – APRIL 2019  
Lecturer/Examiner : JAMES LIOW  
Duration : 3 Hours

**INSTRUCTIONS TO CANDIDATES**

- This question paper consists of 2 parts:**  
**PART A (70 marks) : Answer ONE (1) mini case study. Answers are to be written in the Answer Booklet provided.**  
**PART B (30 marks) : Answer THREE (3) out of FIVE (5) short answer questions. Answers are to be written in the Answer Booklet provided.**
- Candidates are not allowed to bring any unauthorized materials except writing equipment and calculator into the Examination Hall. Electronic dictionaries are strictly prohibited.**
- This question paper must be submitted along with all used and/or unused rough papers and/or graph paper (if any). Candidates are NOT allowed to take any examination materials out of the examination hall.**
- Only ballpoint pens are allowed to be used in answering the questions, with the exception of multiple choice questions, where 2B pencils are to be used.**

**WARNING:** The University Examination Board (UEB) of BERJAYA University College regards cheating as a most serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in accordance with the clauses stipulated in the Students’ Handbook, up to and including expulsion from BERJAYA University College.

**PART A : MINI CASE STUDY (70 MARKS)**

**INSTRUCTION (S)** : Part A consists of **ONE (1)** mini case study. You are required to answer ALL questions in the Answer Booklet provided. All workings are to be shown in the Answer Booklet.

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Classic Brass Inc. was founded by Anthony Towers since 1960 and it has been a leading British luxury yacht manufacturer with meticulous attention to detail, delivering unforgettable experiences. It remains a privately owned company specialising in constructing luxury yacht and motorboats. With clear vision and steady growth Classic Brass has reached employment of over 800 people working on 18,000 square meters of production and assembly halls, capable of taking on even the most ambitious projects. Therefore, Classic Brass has been regarded as one of the most reputable companies in the yacht manufacturing industry.

The current president of the company is John Towers, the son of Anthony Towers who took over the helm of Classic Brass. All these years, the company has always enjoyed sterling performance until the late 1980 where the government has relaxed certain regulations and restrictions, and opening up the markets to other private companies, one of the main competitors is Hessen Yachts.

Classic Brass makes two main product lines for luxury yachts—Standard Stanchions and Custom Compass Housings. These are the most high demand products and the customers are individual owners or big conglomerates from countries such as Croatia, Greece, Italy, USA and Middle East countries.

In recent years, John Towers was very concerned about the performance and financial stability of the company as it found itself in choppy financial waters and the bottom line was in the red. John could not comprehend why the products were unable to make a profit even though cost cutting measure has been carried out.

John has recently attended a management conference at which Activity-Based Costing (ABC) was discussed. He realised that the financial information presented in the monthly management reports have been aggregated and the traditional cost allocations were distorted. Therefore, he would like to know the actual production costs incurred if ABC is implemented and the reason why the company is still operating at a loss.

Following the conference, he called a meeting of the company's top managers to discuss what he had learned. Attending the meeting were Production Manager Susan Richter, Marketing Manager Tom Olafson, and the Accounting Manager Mary Goodman. He began the meeting by distributing the company's income statement that Mary Goodman had prepared a few hours earlier (see **Exhibit 1**):

The following was the conversation held during the meeting:

**Tom** : No, I don't think our prices are too high. I think our competitor, Hessen Yachts' prices are too low. In fact, I'll bet they are pricing below their cost.

**Susan** : Why would Hessen's price below the cost?

**Tom** : Well, I believed Hessen is out to grab market share.

- Susan** : What good is more market share if they are losing money on every unit sold?
- John** : I think Susan has a point. Mary, what is your take on this?
- Mary** : If their pricing Standard Stanchions below cost, shouldn't they be losing money rather than us? If our company is the one using accurate information to make informed decisions while our competitor is supposedly clueless, then why is our "bottom line" taking a beating? Unfortunately, I think we may be the ones relying on distorted cost data, not our competitor.
- John** : Based on what I heard at the conference that I just attended, I am inclined to agree on it. One of the presentations at the conference dealt with activity-based costing. As the speaker began describing the usual insights revealed by activity-based costing systems, I was sitting in the audience getting an ill feeling in my stomach.
- Mary** : Honestly John, I have been claiming for years that our existing cost system is okay for external reporting, but it is dangerous to use it for internal decision making. It sounds like you are on board now, right?
- John** : Yes.
- Mary** : Well then, how about if all of you commit the time and energy to help me build a fairly simple Activity-Based Costing system that may shed some light on the problems we are facing?
- John** : Let's do it. I want each of you to appoint one of your top people to a special "ABC team" to investigate how we cost products.

#### Exhibit 1

The following is the income statement for the year ended 31 December 2018

**Classic Brass Inc.**  
**Income Statement Year Ended 31 December 2018**

	\$	\$
Sales		3,200,000
Less: Cost of goods sold:		
Direct materials	975,000	
Direct labour	351,250	
Manufacturing overhead	1,000,000	(2,326,250)
Gross profit		873,750
Less:		
Shipping expenses	65,000	
General administrative expenses	510,000	
Selling and marketing expenses	300,000	(875,000)
<b>Net operating loss</b>		<b>(1,250)</b>

The following information of Classic Brass Inc.'s traditional cost system was extracted by Mary:

- Only the manufacturing costs: direct materials, direct labour and manufacturing overhead are assigned to the products.
- The manufacturing allocated to overhead to products using a plantwide overhead rate and machine-hours as the allocation base.
- Shipping, administrative, selling and marketing expenses are not assigned to products.

The traditional cost system uses a plantwide overhead rate to assign manufacturing overhead costs to products. It is estimated that the manufacturing overhead is \$1,200,000 and the machine hours required is 24,000. The following are the machine hours worked for the two products:

- Standard Stanchions: 17,500
- Custom Compass Housings: 2,500

Like most other ABC implementations, the ABC team decided that its new ABC system would supplement, rather than replace, the existing cost accounting system, which would continue to be used for external financial reports. The new ABC system would be used to prepare special reports for management decisions such as bidding on new business.

The accounting manager explained the general structure of the ABC model to her team members. For example, a customer order for a custom compass housing requires the activity of preparing a production order. Such an activity consumes resources. A production order uses a sheet of paper and takes time to fill out. And consumption of resources causes costs. The greater the number of sheets used to fill out production orders and the greater the amount of time devoted to filling out such orders, the greater the cost. Hence, ABC attempts to trace through these relationships to identify how products and customers affect costs.

The following were the findings by the ABC team on Classic Inc.'s traditional cost accounting system:

- The existing system is adequately measured the direct materials and direct labour costs of products because these costs are directly traced to products.
- The shipping expenses should have been assigned as direct costs since it can be traced directly to the products.
- The non-manufacturing costs such as selling, marketing and administrative expenses can be assigned to products on the rationale that these costs can be indirectly trace to the individual products and secondly, it is presumably that caused the costs to be incurred, i.e. on a cause-and-effect basis.

The ABC team extracted the revenue earned and direct costs incurred by the two products which will be used for further analysis:

	<b>Standard Stanchions</b>	<b>Custom Compass Housings</b>	<b>Total</b>
	<b>\$</b>	<b>\$</b>	<b>\$</b>
Sales	2,660,000	540,000	3,200,000
Direct costs:			
Direct materials	905,500	69,500	975,000
Direct labour	263,750	87,500	351,250
Shipping expenses	60,000	5,000	65,000

The team felt that it was important to carefully plan how it would go about implementing the new ABC system at Classic Brass. The first major step for ABC team is to identify the activities that will form the foundation for the system. This can be difficult and time-consuming and involves a great deal of judgment. A common procedure is for the individuals on the ABC implementation team to interview people who work in overhead departments and ask them to describe their major activities.

Generally, this results in a very long list of activities. The length of such lists of activities poses a problem. On the one hand, the greater the number of activities tracked in the ABC system, the more accurate the costs are likely to be. However, a complex system involving large numbers of activities is costly to design, implement, maintain, and use. Consequently, the original lengthy list of activities is usually reduced to a handful by combining similar activities. For example, several actions may be involved in handling and moving raw materials—from receiving raw materials on the loading dock to sorting them into the appropriate bins in the storeroom.

All of these activities might be combined into a single activity called material handling. When combining activities in an ABC system, activities should be grouped together at the appropriate level. Batch-level activities should not be combined with unit-level activities or product-level activities with batch-level activities and so on. In general, it is best to combine only those activities that are highly correlated with each other within a level. For example, the number of customer orders received is likely to be highly correlated with the number of completed customer orders shipped, so these two batch-level activities (receiving and shipping orders) can usually be combined with little loss of accuracy.

At Classic Brass, the ABC team, in consultation with top managers, selected the following activity cost pools and activity measures:

Activity Cost Pools at Classic Brass	
Activity Cost Pool	Activity Measure
Customer orders	Number of customer orders
Product design	Number of product designs
Order size	Machine-hours
Customer relations	Number of active customers
Other	Not applicable

**The Customer Orders:** cost pool will be assigned all costs of resources that are consumed by taking and processing customer orders, including costs of processing paperwork and any costs involved in setting up machines for specific orders. The activity measure for this cost pool is the number of customer orders received. This is a batch-level activity because each order generates work that occurs regardless of whether the order is for one unit or 1,000 units.

**The Product Design:** cost pool will be assigned all costs of resources consumed by designing products. The activity measure for this cost pool is the number of products designed. This is a product-level activity because the amount of design work on a new product does not depend on the number of units ultimately ordered or batches ultimately run.

**The Order Size:** cost pool will be assigned all costs of resources consumed as a consequence of the number of units produced, including the costs of miscellaneous factory supplies, power to run machines, and some equipment depreciation. This is a unit-level activity because each unit requires some of these resources. The activity measure for this cost pool is machine-hours.

**The Customer Relations:** cost pool will be assigned all costs associated with maintaining relations with customers, including the costs of sales calls and the costs of entertaining customers. The activity measure for this cost pool is the number of customers the company has on its active customer list. The Customer Relations cost pool represents a customer-level activity.

**The Other:** cost pool will be assigned all overhead costs that are not associated with customer orders, product design, the size of the orders, or customer relations. These costs mainly consist of organization-sustaining costs and the costs of unused, idle capacity. These costs will not be assigned to products because they represent resources that are not consumed by products.

It is unlikely that any other company would use exactly the same activity cost pools and activity measures that were selected by Classic Brass. Because of the amount of judgment involved, the number and definitions of the activity cost pools and activity measures used by companies vary considerably.

**Exhibit 2** shows the annual overhead costs (both manufacturing and nonmanufacturing) that Classic Brass intends to assign to its activity cost pools. The data is extracted from the company's general ledger and it classifies costs within the departments where the costs are incurred. For example, salaries, supplies, rent, and so forth incurred in the marketing department are charged to that department.

**Exhibit 2**

Annual overhead costs (both manufacturing and non-manufacturing) at Classic Brass:

	\$	\$
<b>Production department:</b>		
Indirect factory wages	500,000	
Factory equipment depreciation	300,000	
Factory utilities	120,000	
Factory building lease	80,000	1,000,000
<b>General administrative department:</b>		
Administrative wages and salaries	400,000	
Office equipment depreciation	50,000	
Administrative building lease	60,000	510,000
<b>Marketing department:</b>		
Marketing wages and salaries	250,000	
Selling expenses	50,000	300,000
<b>Total overhead cost</b>		<b>1,810,000</b>

The existing cost system can accurately trace direct materials, direct labour and shipping costs to products. There is no need to incorporate these direct costs in the activity-based allocations of indirect costs

Classic Brass’s activity-based costing system will divide the nine types of overhead costs in **Exhibit 2** among its activity cost pools via an allocation process called first stage allocation. The first-stage allocation in an ABC system is the process of assigning functionally organised overhead costs derived from a company’s general ledger to the activity cost pools.

First-stage allocations are usually based on the results of interviews with employees who have first-hand knowledge of the activities. For example, Classic Brass Inc. needs to allocate the indirect factory wages to its five activity cost pools. These allocations will be more accurate if the employees who are classified as indirect factory workers (E.g. supervisors, engineers, and quality inspectors) are asked to estimate what percentage of their time is spent dealing with customer orders, with product design, with processing units of product (i.e., order size), and with customer relations. These interviews are conducted with considerable care. Those who are interviewed must thoroughly understand what the activities encompass and what is expected of them in the interview. In addition, departmental managers are typically interviewed to determine how the non-personnel costs should be distributed across the activity cost pools. The key question that the production manager would need to answer is “What percentage of the available machine capacity is consumed by each activity such as the number of customer orders or the number of units processed (i.e., size of orders)?”

The results of the interviews at Classic Brass Inc. shows the costs incurred in the respective cost pool as below:

	<b>Activity Cost Pool</b>				
	<b>Customer order</b>	<b>Product design</b>	<b>Order size</b>	<b>Customer relations</b>	<b>Others</b>
	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
<b>Production department:</b>					
Indirect factory wages	1,000,000	1,600,000	800,000	400,000	200,000
Factory equipment depreciation	3,000,000	-	9,000,000	-	3,000,000
Factory utilities	-	240,000	1,200,000	-	960,000
Factory building lease	-	-	-	-	2,000,000
<b>General administrative department:</b>					
Administrative wages and salaries	84,000	28,000	56,000	168,000	224,000
Office equipment depreciation	30,000	-	-	25,000	45,000
Administrative building lease	-	-	-	-	180,000
<b>Marketing department:</b>					
Marketing wages and salaries	550,000	200,000	-	1,500,000	250,000
Selling expenses	450,000	-	-	3,150,000	900,000

The ABC team had estimated the total activity for each cost pool that would be required to produce the company's present product mix and to serve its present customers is presented as below:

<b>Activity Cost Pool</b>	<b>Total Activity</b>
Customer order	1,000 orders
Product design	400 designs
Order size	20,000 machine hours
Customer relations	250 customers
Others	Not applicable

The production team has worked out the following standard overhead costs of the individual products; Standard Stanchions and Custom Compass Housings:

<b>Standard Stanchions</b>
1. This product line does not require any new design resources.
2. 30,000 units were ordered during the year, comprising 600 separate orders.
3. Each stanchion requires 35 minutes of machine time for a total of 17,500 machine hours.
<b>Custom Compass Housings</b>
1. This is a custom product that requires new design resources.
2. There were 400 orders for Custom Compass Housings. Orders for this product are placed separately from orders for Standard Stanchions.
3. There were 400 custom designs prepared. One custom design was prepared for each order.
4. Because some orders were for more than one unit, a total of 1,250 Custom Compass Housings were produced during the year. A custom compass housing requires an average of 2 machine-hours for a total of 2,500 machine-hours.

Tom, the marketing manager, has just received a request from a customer in Middle East, Prince Aujan for a quotation to manufacture two yachts. One is the high end luxury yacht, Equanimity and the other is a lower range yacht, Infinity.

In 2016, Classic Brass Inc. and Hessen Yachts compete in the bidding order for the same products. Prince Aujan is a very price conscious person and he will only purchase whoever could provide the lowest price. In the past bidding, Classic Brass Inc. lost the bidding order to Hessen Yachts for the Equanimity. Surprisingly, Classic Brass won the order for Infinity. Accordingly, Classic Brass Inc. priced the Equanimity way too high and bid for the Infinity way too low.

At Tom's request, Mary prepared cost estimates for producing components for Equanimity and Infinity, so he could submit a contract price to Prince Aujan. The following data for the production of Equanimity and Infinity is compiled:

	<b>Equanimity</b>	<b>Infinity</b>
Direct material costs (\$)	500,000	250,000
Direct labour costs (\$)	25,000	18,000
Shipping expenses	7,500	10,500
Number of customer orders	10	15
Number of product designs	5	8
Number of order sizes (machine hours)	500	1,000
Number of customers served	1	5

The company has a policy of using cost plus pricing method to determine the selling price. The markup percentage for Equanimity is at 30% and Infinity is at 40%.

This time, John is confident that they will be able to compete with Hessen Yachts in term of lower pricing and at the same time achieving a better margin for high end yacht such as Equanimity. He is opined that he might not be able to secure the bid for low range yacht, the Infinity. As such, he is willing to let go to its competitor, Hessen Yachts.

*(All prices and rates are to be rounded up to 2 decimal places. For others are to be rounded up to the nearest whole number)*

**Required**

1. Using the traditional approach to assigning manufacturing overhead costs to product:
  - a) Calculate the predetermined manufacturing overhead rate. (2 marks)
  - b) Assign the manufacturing overhead costs using the predetermined rate for Standard Stanchions and Custom Compass Housings. (4 marks)
  - c) Calculate the total product costs for Standard Stanchions and Custom Compass Housings. (6 marks)
  
2. Discuss **THREE** (3) major problems arising in the implementing of ABC faced by the ABC team of Classic Brass. (9 marks)
  
3. The ABC team has identified and combined major activities of a facility's production process into a single activity. Describe **FOUR** (4) categories of production activities introduced by Robert Kaplan. (8 marks)
  
4. Using the Activity Based Costing, complete the following requirements:
  - a) Calculate the activity rates for each of the activity cost pools. (9 marks)
  - b) Using the activity rates calculated in (4a), assign the manufacturing overhead costs for Standard Stanchions and Custom Compass Housings. (6 marks)

- c) Based on the results of (4b), calculate the total product costs for Standard Stanchions and Custom Compass Housings. (4 marks)
5. As part of the information required in the management report, prepare the profitability reports of traditional costing system and ABC system highlighting the difference in the reported profit margin in term of dollar and percentage. (6 marks)
6. Discuss **THREE** (3) reasons why the two methods reported in Question (5) above produced different product margins. (9 marks)
7. Given the company's markup policy, calculate the proposed selling price under the activity based costing system. (5 marks)
8. Assume the selling price charged by Hessen Yachts for Equanimity is at \$850,000 and Infinity at \$350,000. Calculate the differences in the selling price and recommend whether Classic Brass Inc. will be able to win the bid for Equanimity and Infinity under the activity based costing. (2 marks)

**[Total 70 marks]**

**END OF PART A**

**PART B : SHORT ANSWER QUESTIONS (30 MARKS)**

**INSTRUCTION (S)** : There are **FIVE (5)** questions in this section, answer only **THREE (3)** questions. Write your answers in the Answer Booklet(s) provided. The total marks allocated for each of the questions are shown within brackets.

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**QUESTION 1**

Peter Clarke and Andrew Toad have provided some insightful comments on the area of performance measurement systems in their Article entitled: 'Issues in Performance Measurement' from which the following is an extract:

*'Recent discussion on the area of performance measurement has indicated that a broad set of indicators should be employed to assess performance and these performance metrics should be linked in a cause and effect chain from organisational mission through objectives and strategy to action. Any such framework for performance measurement should attempt to remedy the perceived failings of traditional measurement systems'.*

**Required**

Evaluate these comments by reference to Kaplan and Norton's 'Balanced Scorecard Framework' and illustrate your answer by suggesting **ONE (1)** appropriate performance measure for each of the perspective.

**[Total 10 marks]**

**QUESTION 2**

A Local Enterprise Office has asked your employer, O'Brien & Driscoll, a firm of Certified Public Accountants based in Wicklow, to prepare a series of briefing documents suitable for small and medium sized businesses. You have been asked by the managing partner to develop the first briefing note as outlined in the following requirement.

**Required**

- a) Presents **Four (4)** key differences between management accounting and financial accounting. (4 marks)
- b) Outlines **THREE (3)** factors that influence a company's demand for management accounting information. (6 marks)

**[Total 10 marks]**

### QUESTION 3

CV Holdings Ltd plans to sell its single product. In the next period, the company has targeted a profit of \$300,000. The product's selling price is at \$16.00 per unit. Using the existing production process, fixed overheads for the next period are expected to be \$100,000 and variable cost of \$8.00 per unit

The company is considering a change to its production process. The change would increase the fixed overheads by \$60,000 in the next period and reduce the variable costs to \$7.00 per unit. The selling price will remain constant regardless of production process.

#### **Required**

- a) For the existing production process, calculate for the next period the expected:
- (i) Targeted sales in units (4 marks)
  - (ii) Margin of safety as a % of sales (1 mark)
- b) Advise management, using supporting calculations, whether to change the production process. (5 marks)

**[Total 10 marks]**

### QUESTION 4

The managing director of Jewel Engineering Limited has asked you to prepare a report suitable for senior management, to assist in its understanding of management accounting. He has suggested that senior management need clarification on the topic of cost terms and their importance and application in management accounting

#### **Required**

Explains the following commonly used cost terms in management accounting:

- a) Cost object
- b) Direct and indirect costs
- c) Variable and fixed costs
- d) Product and period costs

Illustrate your answer with **ONE (1)** example each.

**[Total 10 marks]**

### **QUESTION 5**

Strategic management accounting has become increasingly important in the current contemporary environments. Thus, the concept of strategic management accounting has evolved and it involves the provision of information, which is externally orientated, market-driven and customer-focused and provides managers with a range of techniques and tools to facilitate strategically-orientated decision making.

#### ***Required***

Briefly describe the following management accounting tools and techniques:

- Target costing
- Kaizen costing
- Life cycle costing

**[Total 10 marks]**

**END OF QUESTION PAPER**