



Institute of Incorporated Public Accountants

Module 13:

**Advanced Management
Accounting
August
2013**

Instructions: Answer five questions
You must answer the three questions in
Section A

Answer any two questions from
Section B

All questions carry equal marks

Time Allowed: 3 Hours

SECTION A- Compulsory

Answer all three questions

The following scenario, set out on this and subsequent pages, relates to questions 1, 2 and 3 and should be read before attempting those questions.

Engine Makers Ltd, which is located in a west Dublin Industrial estate, has been in business for several years designing and building engines for small to medium class yachts. Recently one of their newly recruited engineers, Pat Brillo, has come up with a design for a powerful new outboard motor engine, for river and lake boats, by reconfiguring the engine of a small yacht. This would involve the incorporation of a tiller and rudder and the encasement of the engine in a waterproof cowling.

The engine is competitive for its size, in terms of power thrust, fuel efficiencies, and low maintenance. The managing director Sheila Flanagan, whose contract has ten months left to run, is enthusiastic about the new engine, as she believes it will increase company profits. She has reorganised the company into two divisions, a Yacht's division and an Outboard division. She has also advertised for a chief accountant, whose functions until now had been carried out on an ad hoc basis by a small firm of accountants.

Under the reorganisation plan the Yacht's division is to be run by their chief engineer Cormac Molloy, who has been with the company since its foundation, whilst the new division- Outboard - is to be run by Pat Brillo. As an incentive to improve overall company profit performance the managing director has offered both divisional heads a bonus of 10% of divisional profits achieved.

In relation to the new outboard motor engine it was agreed that the most sensible approach would be that the Yacht's division, with its previous experience in building engines, should supply the basic motor engine. The Outboard division would then reconfigure it to incorporate a tiller and rudder and manufacture the waterproof cowling in which the engine would be encased and protected from the weather.

A number of new employees were recruited to the new Outboard division, as it was felt that the existing employees should be left in the Yacht's division where their experience would be optimised. At the inspection of the first outboard motor engine produced by the division, the managing director was disappointed to learn that it had taken 10 labour hours at €20 per labour hour. Further, since variable overheads for the division were absorbed on the basis of labour hours at a variable overhead rate of €10 the effect on total costs was even greater.

SECTION A- Compulsory
Answer all three questions
Scenario continued from previous page

Pat however assured her that the employees were not fully practiced. He estimated that an 80% learning curve was in operation, but which would cease after production of the first 10 outboard motor engines.

The managing director then proposed holding a meeting between the divisional heads, on the following Monday when the newly appointed chief accountant would be taking up his/her post. The following Monday you, the newly appointed accountant, had barely settled into your office when you were summoned to a meeting between the managing director and the two divisional heads.

The meeting quickly degenerated into a dispute between the two divisional heads, over the transfer price charged by Cormac Molloy of the Yacht's division for supplying Pat Brillo of the Outboard division with a basic motor engine. Pat indicated that he could purchase the same basic motor engine model from an outside supplier at €1,300. This was less than the €1,680 the Yacht division was charging.

The managing director enquired as to what sales price Pat intended to sell the outboard motor engine, and how many would be sold in the first year. Pat replied that it depended on a number of factors including the price being charged by the Yacht engine division. Cormac interjected to state that he could make better use of the facilities in the sectioned off area of the warehouse that was now being used by Pat. In his view there was no justifiable need for a separate division for producing outboard motors. Instead it should be an add-on operation to his own activity, with special responsibility for it being given to Pat.

Pat countered that since Cormac claimed on numerous occasions that his division was very busy then Cormac's suggestion didn't make sense. On the other hand, if he was not very busy then perhaps there was a need to downsize the Yacht's division. Pat then produced a set of figures, showing the total projected production costs and revenues in relation to the outboard motor engines at different levels of production.

SECTION A- Compulsory

Answer all three questions
Scenario continued from previous page

<u>Engines</u>	<u>Total Costs</u>	<u>Total Revenue</u>		<u>Projected Profit</u>
150	€ 392,000	€ 424,800		€ 32,800
300	€ 734,000	€ 786,600		€ 52,600

“Our total costs include the €1,680 charged by the Yachts division for the basic engine and as you can see our optimum sales volumes should be at 300 engines. However, I have ignored my estimated 80% learning effect in order to err on the side of caution”- Pat

“And how are your total costs arrived at?” the managing director addressing the Yacht divisional manager-Cormac

Cormac then produced his own analysis of cost for his Yacht’s Division, separately highlighting the composition of the transfer price charged to the Outboard division.

Yachts Division	Engine
Materials 135	€ 500
Materials 452	€ 400
Labour 15 hours x €20	€ 300
Basic motor at cost	€ 1,200
Machining	€ 600
Variable overhead	€ 800
Delivery costs	€ 200
Total Costs	€ 2,800
Contribution	€ 560
Sales price	€ 6,160

	Basic Motor to Outboard division
Materials 135	€ 500
Materials 452	€ 400
Labour 15 hours x €20	€ 300
basic motor at cost	€ 1,200
Machining	€ N/A
Variable overhead	€ N/A
Delivery costs	€ 200
Total Costs	€ 1,400
Contribution	€ 280
Transfer Price	€ 1,680

Estimated outside demand 350 engines Demand by Outboard division ???

Total Fixed costs for the Yacht division is estimated at €120,000

SECTION A- Compulsory

Answer all three questions
Scenario continued from previous page

"Of course, now that I know that the number of basic engines required by Pat will be 300, then that will mean that our division will be operating at 95% of available labour hours. Labour hours is our only limiting factor"-Cormac
"But we can get a basic engine from an outside supplier for €1,300 and that would increase our profit and improve on the selling price we offer at the moment," interrupted Pat.

At this point the managing director closed the meeting and handed copies of the statements, prepared by the divisional managers, to you, the new chief accountant, with the following requirements to be addressed before the next meeting.

End of scenario

Question 1

In relation to the production of the outboard motor engine, ignoring any learning curve effects and assuming a transfer price of €1,680:

- (a) What is the variable cost of producing one outboard motor engine and what are the total fixed costs for the outboard division. (3 marks)
- (b) What are the optimum number of outboard motor engines (rounded to nearest engine) and the optimum sales price per engine (rounded to nearest euro). (10 marks)
- (c) Set out the projected Net Profit for the division. (2 marks)
- (d) Comment on the transfer price of €1,680 for a basic engine, charged by the Yacht engine division to Outboard motor division, and whether it is justified. (5 marks)
(20 marks)

SECTION A- Compulsory

Answer all three questions

Question 2

Pat Brillo had indicated to the managing director that he estimated that an 80% learning curve would operate up to the production of the tenth engine, and that the labour hour rate was €20. The variable overhead based on the same labour hours was €10. Cormac Molloy has agreed to reduce the transfer price by the €200 in respect of transport costs.

Assume that there is no change in the material usage and costs for tiller, rudder and cowling per engine.

- (a) Estimate the number of hours [to two decimal places] to produce the tenth outboard motor engine. (5 marks)
- (b) Analyse the estimated revised costs of production of an outboard motor engine after the learning curve effect has ceased. The analysis should show the break down between Materials, Labour and Variable overheads. For materials show separately the amount of materials added during production, for the rudder, tiller and cowling. (5 marks)
- (c) A speed boat club has put in an order for 8 engines when the division had only produced and sold three engines. Assuming 15% mark up on sales what price should the division quote per engine to the speed boat club. Assume the revised transfer price as agreed by Cormac. (6 marks)
- (d) Comment on the use of the learning curve in the above situation (4 marks)
(20 marks)

Note learning curve is $Y = A \times Q^b$ where Q represents quantity.

The 80% learning curve co-efficient is -0.32193

SECTION A

Answer all three questions

Question 3

- (a) Outline four purposes of transfer pricing. **(4 marks)**
- (b) Explain what is meant by dysfunctional decision making, and how this might arise in the context of Engine Makers Ltd. **(6 marks)**
- (c) The Yacht division has already got orders for 350 engines and is committed to supplying the Outboard division with 300 engines. The current operating capacity in labour hours is 95%.

It has now received an order for 30 engines from a new French customer and subsequently another order for 20 engines from a new German customer.

What are the implications, if any, on the transfer price charged to the Outboard division if the Yacht division accepts in the following sequence:

- (i) The order from France for 30 engines
- (ii) The order from Germany for 20 engines

If the Yacht division could increase its labour hours by paying overtime, then how many hours would it need and what would be the maximum overtime rate per hour that it should pay if both French and German orders are accepted. **(10 marks)**
(20 marks)

SECTION B

Answer any two questions in section B

Question 4

Unit Manufacturers Ltd., a newly established company, was preparing to commence operations from the 1st of August 2013. It approached its local bank to get overdraft facilities. The bank's manager indicated that she would need to see budgeted cash flow statements for the next four months from August 1st to November 30th, together with a budgeted income statement for the same period.

Set out below are the projected estimates for the next four months.

	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>
<u>Production Units</u>	600 u	600 u	600 u	700 u
See below for costs				

<u>Sales units</u>	500 u	500 u	700 u	800 u
Sales price per unit is €40				
In order to boost sales, customers will be given two months to pay.				

Variable Production Unit costs

Purchases	€9.00 per unit. Suppliers will give two month credit
Labour	€5.00 per unit Labour will be paid in the month incurred
Variable O/head	€6.00 per unit. These suppliers will give two months credit

Fixed production costs

These are €12,000 per month including €400 for depreciation.
 Fixed production costs, where relevant, are paid a month in arrears
 In the income statement fixed production costs are treated as a period cost.

Capital Expenditure

There will be a purchase in August of machinery for €48,000. This will be payable in that month.

Investors

The investor plan to put €50,000 in cash in the company in September.

Required

(a) Prepare the projected cash budget for each month from August to November inclusive and the total for the period. (13 marks)

(b) Prepare the projected Income statement for the four month period ended 30th November. (7 marks)

Total (20 marks)

Section B

Answer any two questions in section B

Question 5

Set out below are the budgeted costs and actual result of Chemco products Ltd for the month of July 2013

Standard cost card for the production of one unit

					Per unit
5	Kilograms	at cost of	€6.00	per Kilogram	€30.00
2	Labour hours	at cost of	€5.00	per labour hour	€10.00
	Variable overhead	at cost of	€4.00	per labour hour	<u>€8.00</u>
	Production cost				€48.00
	Fixed production overhead	at cost of	€3.00	per unit	€3.00
					€51.00
	Selling Price per unit				€75.00
	Thus Standard Net Profit per unit				€24.00

The budgeted production and sales for July was 10,000 units.

The actual results for July were as follows

Total actual Sales		11,000	units	€866,250
Total actual production		11,000	units	
<u>Total actual costs</u>				
Total material costs	56,650	kilograms	€351,797	
Total labour costs	21,340	hours	€112,035	
Total Variable overhead			<u>€89,628</u>	
Total variable costs			€553,460	
Total fixed costs			<u>€31,200</u>	
Total actual costs for period				<u>(€584,660)</u>
Thus Total Actual Net Profit				€281,590

The requirements are set out on the next page

Section B
Answer any two of the questions in section B

Question 5 continued-requirements

Required

- (a) Calculate all variances analysed by their composite elements
i.e. Price and usage/efficiency variances.
For each variance indicate with a F [favourable] or A [adverse] **(11 marks)**
- (b) Reconcile budgeted net profit with actual net profit. **(3 marks)**
- (c) Compare and contrast briefly between
(i) Ideal standards
and
(j) attainable standards.

(6 marks)
Total (20 marks)

Question 6

- (a) Explain briefly what is meant by the
"Controllability principle" **(3 marks)**
- (b) Outline briefly three guidelines for applying the
"Controllability principle" **(5 marks)**
- (c) Merchant [1998] identifies three types of uncontrollable factors.
List out the three types and discuss briefly each of them **(12 marks)**

Total (20 marks)

END OF EXAMINATION PAPER