

STRATEGIC PERFORMANCE MANAGEMENT

PROFESSIONAL 2 EXAMINATION - AUGUST 2015

NOTES:

You are required to answer **ALL** Questions.

PRESENT VALUE TABLES ARE PROVIDED

Time Allowed

3.5 hours plus **20 minutes** to read the paper.

Examination Format

This is an open book examination. Hard copy material may be consulted during this examination subject to the limitations advised on the Institute's website.

Reading Time

During the reading time you may write notes on the examination paper, but you may not commence writing in your answer booklet.

Marks

Marks for each question are shown. A mark of 50 or more is required to achieve a pass in this paper.

Answers

Start your answer to each question on a new page.

You are reminded to pay particular attention to your communication skills, and care must be taken regarding the format and literacy of your solutions. The marking system will take into account the content of your answers and the extent to which answers are supported with relevant legislation, case law or examples, where appropriate.

Answer Booklets

List on the cover of each answer booklet, in the space provided, the number of each question attempted. Additional instructions are shown on the front cover of each answer booklet.

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

STRATEGIC PERFORMANCE MANAGEMENT

PROFESSIONAL 2 EXAMINATION - AUGUST 2015

Time Allowed: 3.5 hours, plus **20 minutes** to read the paper.

You are required to answer **ALL** Questions.

Instructions to candidates:
Read the following case study
and answer the questions which follow.

Case study: "Diligent PLC"

About six months ago, Sean Kennedy was appointed as managing director of Diligent plc. The company is diversified across several areas of business, and consists of a number of divisions. Among Sean's reasons for accepting the appointment initially were the fact that he was favourably impressed with the calibre of division and business unit managers, the high degree of autonomy granted to them, and the financial results achieved. However, as he has come to know the organisation better, he has become concerned with some issues and he has turned to you (a newly qualified CPA) for advice.

"I still trust our senior managers in terms of their basic competence, their honesty, and their desire to serve our shareholders", Sean has told you. "However, I'm concerned that they may have developed tendencies to rely on intuition and conventional wisdom rather than formal analysis. To put it crudely, if managers begin relying on hunches rather than doing their sums and thinking rigorously, then it can't be good for the shareholders". To illustrate, Sean has identified a number of specific areas.

The first of these is transfer pricing. Divisions, and the business units within divisions, are free to trade with each other (or not) as they see fit, and until now Sean has regarded this as likely to lead to optimal performance for the organisation as a whole. However, he is concerned that there is (as he puts it) *"too much cosy consensus between buyers and sellers in transfer pricing situations. Surely if one business unit is buying a component and another business unit is selling that component, and both business units are profit centres, then they should be at each other's throats in relation to what the transfer price should be. But that's not happening. Maybe I (as managing director) need to get centrally involved in these transfer situations"*.

Another area of concern relates specifically to the publishing industry, in which Diligent plc has a significant investment through its Publications Business Unit (PBU). This unit publishes a number of magazines and newspapers. Sean has told you that *"PBU turns in a reasonable Return on Investment (ROI) each year, but I wonder if they could be doing a lot better. For example, like all similar publishers, it faces the difficult question of what mix of distribution channels to use for its output, in terms of printed publications and/or output delivered over the Internet (including what charging mechanism, if any, to adopt for Internet-delivered content). What concerns me is PBU's less than rigorous approach to addressing this difficult and important decision"*.

Finally, Sean has told you about instances of managers allowing themselves to be guided by what he calls *"mantras, as if they were somehow self-evidently true. As far as I'm concerned, nothing is self-evidently true, and I need my managers to recognise that fact and to face up to the need to formally analyse every important decision as it comes along to see what response is required in the specific situation"*. Examples of such mantras which Sean has heard from his managers are *"always keep your machines working; it's a waste of money if they're sitting idle"* and *"bonuses, if paid at all, should be rewards for individual (rather than group) performance"*.

In order to illustrate the need for (and benefits of) rigorous analysis in decision-making and performance management, Sean has asked you to address the questions which follow.

1. The company's Eclectic Division consists of two autonomous business units, the Components Unit (CU) and the Finished Products Unit (FPU). CU has the capacity to manufacture up to 5,000 units per month of a component, and the following is the monthly production cost schedule for the component at various levels of output:

Number of components produced:	1,000	2,000	3,000	4,000	5,000
Total cost:	€35,000	€75,000	€125,000	€180,000	€250,000

There is demand for this component, from both external customers and FPU. The following is the demand schedule if the component is sold to external customers:

Number of components sold:	1,000	2,000	3,000	4,000	5,000
Selling price per unit:	€70	€66	€60	€54	€50

FPU needs one unit of this component to manufacture each unit of one of its finished products (there is no alternative source of supply for the component). FPU can sell a maximum of 4,000 units of the finished product each month at a fixed price of €125 per unit. The following is FPU's monthly production cost schedule:

Number of units of product manufactured:	1,000	2,000	3,000	4,000
Total cost, before taking account of the cost of the component:	€60,000	€125,000	€190,000	€270,000

REQUIREMENT:

- (a) From the point of view of the company as a whole, assess the optimal total monthly output of components and the optimal allocation of that output as between sales to external customers and transfers to FPU. (14 marks)
- (b) Assume that transfer prices are set on the basis of marginal cost at the output level which you determined in your answer to part (a) above, and that the manager of each of the two business units acts so as to maximise the profit earned by his or her division. To what extent will this motivate goal congruent behaviour on the part of the two divisional managers? Provide a detailed analysis to support your answer. (10 marks)

[Total: 24 Marks]

- 2.** The company's Publications Business Unit (PBU) will soon begin publication of a weekly magazine for consumers. The weekly costs of publishing and distributing the magazine are estimated at €1,000 (fixed) plus €0.40 per copy printed and sold. Advertising revenue is estimated at €500 per week irrespective of the number of copies sold. Market research indicates that demand for the magazine will depend on its selling price, as follows:
- At a price of €5, no copies of the magazine would be sold.
 - Each subsequent price reduction of €0.001 would increase demand for hard copies by 1 unit.

REQUIREMENT:

- (a)** On the basis of the data provided above, what price should PBU charge for the magazine and how many copies of the magazine would be sold each week at your recommended price? (5 marks)
- (b)** Assume now that the following information is also available. About half of the content of the magazine will be made available through PBU's website. The analysis in part (a) reflected the unit's intention that the website would be available to visitors at no charge, but the company is now considering the possibility of using a paywall so that customers would have to pay a weekly subscription to access the site. The following data is available:
- The technical costs to PBU of operating the paywall would be €150 per week.
 - If the paywall is imposed then the weekly subscription charged for access to the website will be €0.40 and it is estimated that the average number of subscribers in any week will be 1,000. (It is estimated that there will be 6,000 visitors per week to the website if access is not paywall-restricted).
 - Revenue from advertising on the website is estimated to be €0.10 per website visitor or subscriber, irrespective of whether or not a paywall is imposed.
 - Market research indicates that the financial situation of the printed magazine would be affected by the decision to paywall-restrict the website, in two ways. First, the advertising revenue of the printed magazine would increase by €200 per week, because advertisers would perceive a likelihood that the existence of the paywall would encourage more consumers to buy the magazine in printed form. Second, the existence of a paywall would alter the demand curve for the printed magazine, such that (if a paywall is imposed) then the optimal price for the printed magazine would be €2.80 per copy and 3,000 copies would be sold at this price.

REQUIREMENT:

Assuming that PBU wishes to maximise its overall profitability (from the printed magazine plus the website), recommend whether the paywall restriction be imposed or not. Prepare a detailed financial analysis to support your answer stating any assumptions which you make.

(9 marks)

- (c)** The manager of PBU has stated: "It seems to me that there are almost too many business models for PBU to choose from. Some magazine publishers make none of their content available online at all; others publish some content in a website (either with or without a paywall) as we are proposing to do; while others sell subscriptions to online versions which have all of the content of the hard copy equivalents. How can we rationally analyse which of these options is best for us?"

Critically discuss this statement. Calculations are not required in your answer to this part.

(8 marks)

[Total: 22 Marks]

3. Mike Brennan is the general manager of one of the company's factories which is located in Co. Offaly. Mike is highly regarded by his superiors for what they perceive as his excellent performance in restructuring and managing this factory. All production in the factory takes place in dedicated production cells, with each cell containing all of the human and machine resources needed to manufacture a single product.

As an example, Mike has explained to you the functioning of Production Cell #7. The manufacture of a unit of the cell's product requires work to be carried out on each of the cell's three workstations in a defined sequence (i.e., on workstations #1, #2, and #3 in that order). There were no stocks of any kind on 1 July last. Mike devotes considerable resources to carrying out preventive maintenance on all workstations to ensure that they are capable of operating at their maximum capacities. Mike has stated that *"in order to recoup our investment in preventative maintenance, it's important that we keep all of our workstations in use to the maximum extent possible, and therefore from 1 July idle time on any workstation will not be tolerated"*.

The following information about the various workstations is provided:

	Workstation #1	Workstation #2	Workstation #3
Monthly capacity (machine hours)	12,000	15,300	13,500
Preventative maintenance expenditure, per month	€15,000	€13,000	€13,000
Machine hours on each work station, per unit of product	2.5	3.4	3.6

The selling price of the product is €80 per unit, and the total raw material cost is €30 per unit of output. Units of finished product are sold as soon as they complete production on workstation #3. If there are any units of work-in-progress (WIP) at the end of a month then WIP holding costs arise. These amount to €15 if the unit has completed operations on workstation #1 only and €20 if the unit has completed operations on both workstation #1 and workstation #2.

REQUIREMENT:

- (a) Critically evaluate the estimated profit in July of Production Cell #7 on the basis of the information provided above and assuming that Mike's instructions are followed. (14 marks)
- (b) Mike has estimated that each €125 per month reduction in preventive maintenance on workstation #1 would reduce its monthly capacity by 25 machine hours. For each of the other two workstations, each €50 per month reduction in preventative maintenance would reduce capacity by 25 machine hours. These effects would be for one month only.

Recommend an improved monthly production plan, involving changes to the amounts of work performed and preventative maintenance carried out, and show the increase in profit for the month (as compared to the approach adopted in answer to part [a] above) which would result.

(7 marks)

[Total: 21 Marks]

4. One of the company's divisions is a profit centre based in Cork which produces and sells a single product. The following statement shows the budgeted profit for the first month of the current financial year:

Sales (18,000 units @ €25 each)	€450,000
Raw materials (Type A): 7,200 kg. @ €3 per kg.	(€21,600)
Raw materials (Type B): 3,600 kg. @ €4 per kg.	(€14,400)
Raw materials (Type C): 1,800 kg. @ €5 per kg.	(€9,000)
Direct labour: 9,000 hours @ €11 per hour	(€99,000)
Variable overhead (€5.50 per direct labour hour)	(€49,500)
Fixed overhead	(€80,000)
Budgeted profit	<u>€176,500</u>

The product is at a relatively mature stage in its lifecycle and the division (and its competitors) have had to accept the reality of a gradually shrinking total market size. Another problem is that cost savings are difficult to achieve in this industry (in particular, raw material prices are increasing). The actual financial outcome for the month was as follows:

Sales (17,000 units @ €25.80 each)	€438,600
Raw materials (Type A): 2,475 kg. @ €3.20 per kg.	(€7,920)
Raw materials (Type B): 5,775 kg. @ €4.20 per kg.	(€24,255)
Raw materials (Type C): 3,290 kg. @ €5.10 per kg.	(€16,779)
Direct labour: 7,700 hours @ €11 per hour	(€84,700)
Variable overhead	(€45,600)
Fixed overhead	(€78,000)
Actual profit	<u>€181,346</u>

There were no stocks of any kind at the beginning or end of the month. It can be assumed that a standard marginal costing system is used.

REQUIREMENT:

- (a) Construct a variance analysis on the above, in which you are required to evaluate and reconcile the budgeted and actual profits for the month in as much detail as is possible from the information provided. (12 marks)
- (b) Appraise the strategy adopted by the Cork Division. Justify your answer in detail using your variances from part (a) to support your view and specify the additional information which would be most useful in enabling you to carry out a more comprehensive appraisal. (9 marks)

[Total: 21 Marks]

5. The manager of the Celtic Business Unit, Victoria Smith, recently joined the company from a major public sector organisation where she had considerable success in implementing organisational change. Based on her experience in her previous employment, Victoria is very critical of what she calls "a bonus culture, with senior staff being paid large bonuses even when they achieve quite ordinary levels of performance". She is also highly critical of what she calls "a group culture, where rewards are awarded to a group of people for so-called collective achievement and everyone shares equally in the reward irrespective of how little or how much each person contributed to the collective achievement". These opinions have caused Victoria to very significantly reduce and alter the use of incentive schemes in the Celtic Business Unit so as to roll back the tide of the "bonus culture" and "group culture" which she has identified.

REQUIREMENT:

Prepare a memo for Sean Kennedy, in which you critically evaluate Victoria's approach.

[Total: 12 Marks]

[Total: 100 Marks]

END OF PAPER

SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND STRATEGIC PERFORMANCE MANAGEMENT

PROFESSIONAL 2 EXAMINATION - AUGUST 2015

SOLUTION 1

- (a) • Marginal cost (MC) for each batch of 1,000 units:

1st 1,000	€35K
2nd 1,000	€75K - €35K = €40K
3rd 1,000	€125K - €75K = €50K
4th 1,000	€180K - €125K = €55K
5th 1,000	€250K - €180K = €70K

- Marginal revenue (MR) for each batch of 1,000 units if sold externally:

1st 1,000	€70 * 1,000 = €70K
2nd 1,000	(€66 * 2,000 = €132K) - (€70 * 1,000 = €70K) = €62K
3rd 1,000	(€60 * 3,000 = €180K) - (€66 * 2,000 = €132K) = €48K
4th 1,000	(€54 * 4,000 = €216K) - (€60 * 3,000 = €180K) = €36K
5th 1,000	(€50 * 5,000 = €250K) - (€54 * 4,000 = €216K) = €34K

- Incremental net revenue for each batch of 1,000 units if transferred to FPU:

	Costs in FPU	Sales by FPU	FPU Net Revenue	FPU Incremental net revenue for each batch of 1,000 units
1,000	€60K	€125 * 1,000 = €125K	€125K - €60K = €65K	€65K
2,000	€125K	€125 * 2,000 = €250K	€250K - €125K = €125K	€125K - €65K = €60K
3,000	€190K	€125 * 3,000 = €375K	€375K - €190K = €185K	€185K - €125K = €60K
4,000	€270K	€125 * 4,000 = €500K	€500K - €270K = €230K	€230K - €185K = €45K
5,000	N/A	N/A	N/A	N/A

- Best use of each batch:

	MC of batch	MR (external sale)	Incremental marginal revenue (transfer)	“Winner”
1st 1,000	€35K	€70K	€65K	External
2nd 1,000	€40K	€62K	€65K (first transfer batch)	Transfer
3rd 1,000	€50K	€62K (second external batch)	€60K (second transfer batch)	External
4th 1,000	€55K	€48K (third external batch)	€60K (second transfer batch)	Transfer
5th 1,000	€70K	€48K (third external batch)	€60K (third transfer batch)	Neither: MC > MR in either application

- Hence, optimal output is 4,000 components, with 2,000 being sold externally and 2,000 transferred to FPU. (4 marks)

- (b)
- Transfer price €55,000 / 1,000 units = €55K per unit.
 - Transfer price per batch of 1,000 units = €55 * 1,000 = €55K.

CU:

- First 2 batches of 1,000 units: External MR > €55K > MC ⇒ Produce & sell externally.
- Next 2 batches of 1,000 units: €55K > = MC > MR from external sale ⇒ Happy to produce a 3rd batch for transfer and willing (no gain/loss) to produce a 4th batch for transfer.
- Fifth batch: MC > €55K > MR from external sale ⇒ Not produced.
- Summary: Produce 4 batches, consisting of 2 for external sale and 2 for transfer ⇒ goal congruent.

FPU:

- First 3 batches of 1,000 units: Incremental MR > €55K ⇒ Would be willing to buy up to 3 batches at this transfer price.
- But CU will be willing to transfer only two batches, and FPU cannot force the transfer of any more. Therefore goal congruent behaviour by FPU would result.

(10 marks)

Tutorial notes

- Purpose of question: Assess candidates in the area of transfer pricing systems, including the ability to identify goal congruent transfers and transfer prices (Syllabus Topic 3).
- Options: Both parts are quite open-ended in the sense that they state the purpose of the desired analysis but require candidates to select and apply the appropriate analytical techniques. Therefore the examiner will accept alternatives to the precise approaches presented here provided that the alternatives are equally rigorous and comprehensive in responding to the questions asked in both parts of the question.
- Essential components: Candidates must conduct an analysis to reveal the output and transfer levels that are appropriate from the viewpoint of the company as a whole (part [a]) and assess whether goal congruence will be achieved by a specified transfer pricing mechanism (part [b]).

SOLUTION 2

- (a) Fixed costs and advertising revenue are not affected by the price or quantity, so it is appropriate just to maximise total contribution:

$$P = 5 - 0.001X$$

$$\Rightarrow TR = 5X - 0.001X^2$$

$$\Rightarrow MR = 5 - 0.002X$$

$$MC = 0.4$$

$$MR = MC$$

$$\Rightarrow 5 - 0.002X = 0.4$$

$$\Rightarrow 4.6X = 0.002X$$

$$\Rightarrow X = 2,300.$$

$$P = 5 - (0.001 * 2,300) = \text{€}2.70$$

So the optimal price / quantity combination is 2,300 copies at a price of €2.70 each.

(5 marks)

- (b) Incremental cost and revenue effects of imposing the paywall :

- Technical costs: Paywall creates incremental costs of €150.
- Website subscription revenue: Paywall adds revenue of €0.40 * 1,000 = €400
- Website advertising revenue: Paywall reduces revenue by €0.10 * (6,000 – 1,000) = €500
- Printed magazine advertising revenue: Paywall adds revenue of €200.
- Effect on contribution from sales of the printed magazine (at optimal price / output combination), given the different demand curves:

No paywall:
From solution to part (a)

$$\text{Contribution} = 2,300 \text{ copies} * (\text{€}2.70 - \text{€}0.40 = \text{€}2.30 \text{ per copy}) = \text{€}5,290$$

If paywall imposed:
From data provided about revised demand curve

$$\text{Contribution} = 3,000 \text{ copies} * (\text{€}2.80 - \text{€}0.40 = \text{€}2.40 \text{ per copy}) = \text{€}7,200$$

Paywall adds contribution of:

$$\text{€}7,200 - \text{€}5,290 = \text{€}1,910$$

Summary: Incremental effect on profits of imposing the paywall

	Effect on profits
Technical costs	Minus €150
Website subscription revenue	+ €400
Website advertising revenue	Minus €500
Printed magazine advertising revenue	+ €200
Contribution from printed magazine	+ €1,910
Overall effect	+ €1,860

Recommendation

- The paywall should be imposed, as it results in considerably higher weekly profits.
- The main assumption made is that the information (e.g., market research) is correct and is acted upon by PBU. For example if the information about demand functions is known to be fully correct and it is desired to maximise profits, then exactly the specified number of copies (2,300 or 3,000) will be printed and none will be left unsold nor will there be any unsatisfied demand. However it is unlikely that this degree of certainty exists and strategic choices are usually made with imperfect information (including testing the effect on profitability of various possible values of uncontrollable factors).

(9 marks)

- (c)
- First of all, it should be pointed out that there is no “one best option”. The fact that examples of all these competitive strategies for selling content are in use by various publishers illustrates that all of them can be (and are) profitable. It is a matter of strategic choice which one (or more) PBU wishes to adopt for a particular publication.
 - As shown in Part (b) there are a number of financial interdependencies. The extent and nature of any availability of content through website and electronic versions is likely to have an impact on hard copy sales.
 - For example, if there is an excellent electronic version or website then this is likely to make sales of the hard copy version harder to achieve. In such a situation, the prices charged for the electronic version or website need to be high enough to generate significant revenues in their own right. This is the business model typically adopted by content-rich “hobby” or “interest” publications in areas such as science, technology, or history. It is often a deliberate part of the strategy to encourage regular readers to buy the electronic version rather than hard copy (because of lower incremental costs per copy for the publisher).
 - On the other hand a business model involving only minimal online presence is typical of mass-circulation newspapers. These often have content which is light-hearted rather than substantive, and users can obtain similar light-hearted content for free on other websites. Therefore an online presence cannot realistically be a significant direct revenue-generator. The online presence is limited to sparking enough interest among consumers to get them to go out and buy the publication, resulting in significant income both from direct sales and also from the high advertising rates which can be charged for a large-circulation publication.
 - Therefore when deciding “what option is best for us”, it is important to choose one which is a good fit for the type of publication and which will maximise net profit from all sources (as illustrated in part [b] above).

(8 marks)

Tutorial notes

- Purpose of question: To test ability to rationally analyse a decision-making situation which also involves important aspects of pricing and profit maximisation (Syllabus Topic 1), analysis of alternative competitive strategies (Syllabus Topic 3), and e-commerce (Syllabus Topic 5).
- Options: Part (b) requires a detailed financial analysis using a quite specific data set provided, but there is some scope for variation in the format and layout. There is also scope for acceptable variation in the points made in answer to part (c), although there are certain essential elements referred to below.
- Essential components: Candidates need to be able to apply the profit-maximisation approach to pricing decisions in order to answer part (a). Candidates must be able to make use of the specific information provided in part (b) in order to assess the decision as to whether or not to impose a paywall. In answer to part (c) it is important to explain why there is no one universally best approach and to identify how the best approach in a particular situation might be identified.

SOLUTION 3

- (a) • Determine feasible output:

	Workstation #1	Workstation #2	Workstation #3
Capacity (MH)	12,000	15,300	13,500
MH per unit of product	2.5	3.4	3.6
Capacity (units of product)	4,800	4,500	3,750

- Production of a unit requires all three workstations \Rightarrow production limited to 3,750 units per month.
- Contribution from units sold

$$= 3,750 * [\text{€80 selling price} - \text{€30 raw materials} = \text{€50 contribution}]$$

$$= \text{€187,500.}$$

WIP stocks:

- Cost of holding WIP stocks (workstation #1):
 - Workstation #1 \Rightarrow operated at full capacity (4,800 units)
 \Rightarrow but Workstation #2 can process only 4,500 of these
 \Rightarrow WIP stock in Workstation #1 = 300 units.
 - Workstation #2 \Rightarrow operated at full capacity (4,500 units)
 \Rightarrow but Workstation #3 can process only 3,750 of these
 \Rightarrow WIP stock in Workstation #2 = 750 units.
 - WIP holding costs = $(300 * \text{€15}) + (750 * \text{€20}) = \text{€19,500.}$
- Total preventive maintenance cost = $\text{€15K} + \text{€13K} + \text{€13K} = \text{€41,000.}$
- Profit in Cell #7 = $\text{€187,500} - \text{€19,500} - \text{€41,000} = \text{€127,000.}$

(14 marks)

- (b) Recommendation:

- Reduce production on Workstations #1 and #2 to 3,750 units. This will avoid the wasteful production and storage of WIP units, and leave the number of completed units produced and sold unchanged at 3,750 units per month.
- Decrease preventive maintenance on workstations #1 and #2, as there is no benefit in paying to retain capacity above the level which will be needed in the current month to achieve the reduced production levels on these two machines.
- Amount of reductions in preventive maintenance:

	Workstation #1	Workstation #2
Reduction in units of product	$4,800 - 3,750 = 1,050$ units	$4,500 - 3,750 = 750$ units
Reduction in MH	$1,050 * 2.5 = 2,625$ MH	$750 * 3.4 = 2,550$ MH
Reduction in preventive maintenance expenditure	$(2,625 / 25 = 105) * \text{€125} = \text{€13,125}$	$(2,550 / 25 = 102) * \text{€50} = \text{€5,100}$

- Effect on monthly profits of proposed improved production plan:

Elimination of WIP holding costs	€19,500
Reduction in preventive maintenance costs: $\text{€13,125} + \text{€5,100}$	€18,225
Increase in profits	€37,725

(7 marks)

Tutorial notes

- Purpose of question: To test candidates' ability to deal with a decision-making problem involving limiting factors, and to select and apply the theory of constraints / throughput accounting technique as the appropriate basis for recommending a course of action (Syllabus Topic 1).
- Options: Part (a) requires candidates to assess the financial consequences of a clearly defined proposed course of action, so there is only limited scope for variation. There may be somewhat greater scope in part (b) but the essential elements must be properly addressed (see below).
- Essential components: Candidates must present the calculations required to fully assess the consequences of the proposed course of action in part (a). In part (b) they must be able to develop and show the consequences of an alternative course of action which they could truly recommend – e.g., one which reduces (but does not eliminate) work-in-progress inventories would be inferior to the one suggested here.

SOLUTION 4

(a) Sales price variance:

Actual price (AP) €25.80	Budget price (BP) €25	Actual quantity (AQ) 17,000	SPV = (AP – BP) * AQ €13,600 F
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Sales volume variance:

Actual quantity (AQ) 17,000	Budget quantity (AQ) 18,000	Budget contribution (€176,500 + €80K) / 18,000 = €14.25	SVV = (AQ – BQ) * Budgeted contribution €14,250 U
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There is no labour rate variance (AWR = SWR = €11 per hour)

Labour efficiency variance:

Actual hours (AH) 7,700	Standard hours (9,000 / 18,000 = 0.5) * 17,000 = 8,500	Standard wage rate €11	LEV = (AH – SH) * SWR €8,800 F
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Variable OH spending variance:

Actual variable OH €45,600	Standard variable OH per DLH €5.50	AH * Standard VO Rate 7,700 * €5.50 = €42,350	Variance €3,250 U
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Variable OH efficiency variance:

Actual hours (AH) 7,700	Standard hours 8,500	Standard variable OH per DLH €5.50	VOEV €4,400 F
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Fixed OH spending variance:

Actual fixed OH €78,000	Budgeted fixed OH €80,000	Variance €2,000 F
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Materials price variance:

	Actual price	Standard price	Actual quantity	MPV = (AP – SP) * AQ
A	€3.20	€3	2,475	€495 U
B	€4.20	€4	5,775	€1,155 U
C	€5.10	€5	3,290	€329 U
Total:				€1,979 U

Raw materials mix variance:

	Actual quantities in actual mix	Actual quantity in standard mix [4: 2 :1]	Standard price	MMV
A	2,475	6,594 (rounded)	€3	€12,357 F
B	5,775	3,297 (rounded)	€4	€9,912 U
C	3,290	1,649 (rounded)	€5	€8,205 U
Total:	11,540	11,540		€5,760 U

Raw materials yield variance:

- Actual yield = 17,000 units.
- Standard yield = 18,000 / 12,600 kg = (10 / 7) units per kg of raw material used ⇒ 11,540 * (10 / 7) = 16,486 units approx.
- Standard raw material cost per unit of output = (€21,600 + €14,400 + €9,000 = €45,000) / 18,000 = €2.50.
- Hence: variance = (17,000 – 16,486 approx) * €2.50 = €1,286 F.

Reconciliation:

Budget profit	€176,500
Sales volume variance	€14,250 U
Sales price variance	€13,600 F
Labour efficiency variance	€8,800 F
Labour rate variance	Nil
Variable OH efficiency variance	€4,400 F
Variable OH spending variance	€3,250 U
Materials price variance	€1,979 U
Materials mix variance	€5,760 U
Materials yield variance	€1,286 F
Fixed OH spending variance	€2,000 F
Actual profit	€181,346 (possible €1 rounding difference)

(12 marks)

- (b)
- A noticeable feature of the strategy was to increase selling price. This is perhaps contrary to what might have been expected given the shrinking market.
 - However, it seems likely that this price increase was part of a strategy that involved maintaining and improving product quality, even if this led to some cost increases being passed on to customers through higher prices. It is noticeable that there was an unfavourable materials mix variance (signalling relatively greater use of the more expensive raw materials). This was only partly offset by improved materials yield.
 - The division seems to have resisted any temptation to cut labour costs by using a cheaper grade of labour. The grade of labour actually used was apparently the same as budgeted (since the budget and actual wage rate are the same). This was accompanied by (and perhaps caused?) very worthwhile efficiencies which generated a total cost saving of €13,200 (the improved efficiency led to savings of €8,800 in labour costs and €4,400 in variable overhead costs).
 - In one sense the strategy can be said to be worthwhile since actual profit exceeded budget, which is a very positive achievement in a shrinking market. However the major “unknowable” is what would have happened if a different strategy had been adopted. In principle, if we could see the budget and actual results of competitors who had adopted different strategies (e.g., price-cutting strategies) then we could compare their performance with the Cork division’s. More plausibly, more detailed marketing variances for the Cork division would give additional useful insight. In particular what was the breakdown in the sales volume variance between controllable market share effects and uncontrollable market size effects? Also did the market mix variance really result from the positive choices suggested above, or did it in fact result from poor raw material choices which had no positive effect on product quality and demand?

(9 marks)

Tutorial notes

- Purpose of question: To test candidates’ ability to conduct an advanced variance analysis and to assess the extent to which the results of that analysis can be used to scrutinize the financial effects of implementing a competitive strategy (Syllabus Topic 2).
- Options: Part (b) contains very considerable scope for variation. Candidates are expected to identify and assess the strategy of the division. As it is not fully obvious what the actual strategy was, the examiners will give credit for any reasonably plausible strategy provided that candidates present good quality evidence to support their contention that this was (or may have been) the strategy actually adopted.
- Essential components: Candidates must conduct variance analysis fully in the maximum degree of detail possible in part (a). In part (b) they must identify a strategy, justify why they believe their strategy was the one actually adopted, assess its financial effects, and indicate what additional information would be useful.

SOLUTION 5

To: Sean Kennedy
From: A. CPA Accountant
Re: Incentive Schemes/Bonds Culture/Group Culture
Date: 30 September 20XX

- The fundamental flaw in Victoria's approach is her failure to recognise that every organisation has its own particular circumstances and contingencies. What she "learned" in her previous employer organisation is most directly relevant in the management of that same organisation. This is not to say that this prior learning has no relevance to the Celtic Business Unit (CBU), but she needs to learn to apply that learning to CBU's particular context, having due regard to the important differences (as well as any similarities) between the two organisations.
- For example, the idea of an "unacceptable bonus culture" may be said to have gained considerable ground in relation to publicly-owned or publicly-accountable utilities. But this issue per se is of no relevance to the Celtic Business Unit, which is part of a privately-owned and presumably profit-oriented company, where the issue is accountability to the shareholders (in terms of maximising shareholder wealth) rather than accountability to the public in a political sense.

Bonus culture:

- If large bonuses (and therefore large total remuneration packages) are being awarded for "very ordinary levels of performance", then the problem is that the bonuses (and/or other elements of the remuneration) are simply too large or awarded for too low a level of performance. In general, a bonus scheme has the following elements:
 - Bonus amount;
 - Amount of guaranteed salary (if any);
 - Level of performance required in order to "trigger" payment of the bonus (this in turn is reflected in the probability that a hard-working and competent employee will achieve this level of performance).
- It is often more appropriate to redesign the particular elements of the bonus scheme to make it a cost-effective way of achieving optimal employee performance, rather than adopt a crude approach of eliminating such schemes. For example, unless employee effort (as opposed to outcome) is observable by Victoria then the absence of bonuses eliminates the incentive for employees to work hard. Similarly, the amount of the bonus and the probability of achieving the "trigger" level of performance must be high enough that (from the employee's perspective) the expected utility of "working" hard in CBU is greater than the expected utility of making less effort or of working for a different employer.

Group culture:

- The theoretical objection to group incentive schemes is that an individual's incentive to make extra effort to improve the overall outcome is diluted. The additional bonus payment is divided among the group rather than being paid 100% to the person whose extra effort led to the improved outcome.
- Clearly there are situations where group incentives would be inappropriate for this reason. For example if each member of the field sales staff has his/her own distinct set of customers then rewards for incremental sales to particular customers can easily (and fairly) be traced to the individual sales staff member.
- However most "good outcomes" in an organisation are dependent on collective effort, so what is needed is to reward people for their contribution to collective outcomes rather than reward "selfish" solo players. For example, the task of redesigning a product to improve its customer value and/or reduce its cost of production is necessarily a team effort involving inputs from staff in various organisational functions including design, production, marketing, and cost management. A successful outcome is dependent on their combined effort. In principle, Victoria could attempt to measure each individual's contribution to the team, but this is unlikely to be practical. A group reward for the team's achievement of the desired outcome is a straightforward incentive scheme to implement and has the advantage of reinforcing collective responsibility for achievement rather than an attitude of "I did my bit".

Tutorial notes

- Purpose of question: To require candidates to assess a particular attitude to incentive schemes and their implications for performance management (Syllabus Topic 4).
- Options: Given the nature of the question, a variety of points may validly be made in the answer, subject to the essential components below.
- Essential components: There are certain basic flaws in the manager's logic which must be identified and addressed. In particular these are the fact that lessons learned in managing one organisation require context-specific adaptation before they can be applied in another organisation; the fact that bonus schemes are often a necessary (if theoretically imperfect) element of incentivising staff and that these schemes must usually be "tweaked" rather than abandoned"; and the fact that group incentive schemes are also often necessary and appropriate.

I will be pleased to provide any further clarification that you require regarding the above.

A. CPA Accountant

(12 marks)