

STRATEGIC PERFORMANCE MANAGEMENT

PROFESSIONAL 2 EXAMINATION - APRIL 2019

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. The pass mark required is 50% in total over the whole 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

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

**Read the following case study
and answer the questions which follow.**

Case study: 'Planet Group Plc'

Fiona Ryan is Chief Executive Officer (CEO) of Planet Group Plc. Prior to joining Planet Group (hereafter referred to as 'the Group') Fiona had a distinguished career with a number of large and diversified companies. She joined the Group just three months ago, having been head-hunted specifically for the role by its non-executive Board. The Board believes that several divisions in the Group have not achieved their maximum potential in the past and that Fiona is the ideal person to identify and secure performance improvements. She has now completed a preliminary review of the Group's divisions, and has drawn some important conclusions.

Firstly, the Group is remarkably diverse, with divisions engaged in activities ranging from food manufacturing to bookselling. In principle, Fiona does not necessarily regard this diversity as a bad thing, because she agrees strongly with divisional autonomy in operations, so long as adequate financial returns are achieved. As she puts it, *"I don't care what business a division is in, so long as it is managed well and makes money"*.

Secondly, division managers are all competent in their particular field of expertise, and this reflects the way in which the Group was established. In particular, the Group was formed mainly by external acquisition, with previously independent companies becoming divisions of the Group, often with their existing management and staff still in place. Thus, for example, divisions which engage in engineering or manufacturing tend to have managers whose background is in engineering or in operations management. Traditionally, the Group has made significant expenditures on sending such managers on executive education courses so that all division managers are educated in accounting and performance management techniques such as activity-based cost management, variance analysis, and transfer pricing.

Thirdly, Fiona is not convinced that the expenditure on executive education has always been productive for the Group. At a recent meeting with the non-executive Board, she said: *"It's all very well a division manager knowing about what variances are, or what activity-based product costs are, and being able to calculate these things down to the last cent. But what is important is whether division managers can really use their expertise to run their divisions more successfully – and when I say 'expertise' that can be his or her own previous expertise, their executive education, their practical experience, or any combination of all three. There is also the thorny question of whether division managers are being incentivised to act in the Group's best interests. Let's take a good look at some of our divisions and see if we can achieve serious performance improvements. After all, that's why you hired me"*.

To address the issues raised above, you are required to answer the five questions in the remainder of this examination paper.

1. The **Mercury Division** regularly purchases an organic fruit and nut mix in bulk which is used to manufacture two products. The division brands these products as a 'healthy snack bar' (HSB) and an 'eco-friendly cereal' (EFC). The typical monthly production and sales volumes are 40,000 kilograms of HSB and 10,000 kilograms of EFC. The production costs for this typical monthly output are as follows:

Purchases of raw materials (organic fruit and nut mix)	€90,000
Chopping of raw materials	€42,000
Packing materials for HSB	€6,700
Packing materials for EFC	€4,000
Cost of packaging operations (excluding packing materials)	€19,500
Quality control inspections	€7,800
Total cost	€170,000

Since both products contain the same raw materials and involve the same production processes, the Mercury Division applies what the division manager describes as a "fair and reasonable" pricing policy. First, in order to get an overall product cost per kilogram of output, he divides the total costs per month (€170,000) by the total combined output (in kilograms) of the two products. Then, he applies profit mark-ups of 40% in the case of the HSB and 25% in the case of the EFC. He believes that these mark-ups are modest when compared to those of competitors (previously he had used a 30% mark-up for the EFC but reduced this to 25% when he discovered that the 30% mark-up led to this product being significantly more expensive than comparable products offered by competitors).

In order to facilitate an understanding of the profitability of the two products, the division manager has assembled the following information about the activities involved in their production:

	HSB	EFC
Chopping of raw materials	Speed = 50 kilograms per hour	Speed = 25 kilograms per hour
Packaging operations	Speed = 100 kilograms per hour	Speed = 40 kilograms per hour
Quality control inspections	45 per month	15 per month

REQUIREMENT:

- (a) Prepare a report for the division manager, analysing the profitability of each product. Your answer should identify the product prices per kilogram which the Division charges at present and the cost driver rates for each activity. (15 marks)
- (b) Critically evaluate the ways in which the division manager should use the answer to part (a) above so as to improve the Division's profitability and competitiveness. (10 marks)

[Total: 25 Marks]

- 2.** The **Venus Division** provides various cloud storage facilities for online clients. The division manager's annual bonus is determined by the extent to which the Return on Investment (ROI) earned by the division exceeds the cost of capital. ROI in the Group is measured as accounting profits (after deduction of straight-line depreciation) divided by the net book value of assets at the beginning of the year. In recent years, the division has consistently achieved ROI of 12% per annum, and the cost of capital is 5% per annum.

The Venus Division is considering further new investment in I.T. equipment which would increase the range and scale of services offered to clients. The equipment would cost €200,000 (payable immediately) and would have a 4-year useful life with nil residual value at the end of that time. The net cash inflows to the division at the end of each of the four years would be as follows:

Year 1	Year 2	Year 3	Year 4
€40,000	€60,000	€70,000	€76,120

The division's financial controller has analysed all of the cash flows associated with the proposed further investment in new I.T. equipment and has determined that the Internal Rate of Return (IRR) would be 8% per annum.

REQUIREMENT:

- (a)** Critically evaluate whether the Division Manager is likely to make the proposed investment in I.T. equipment and whether the decision will lead to the maximisation of shareholder wealth.

Your answer should provide thorough justification of your reasoning supported by appropriate calculations.

(12 marks)

- (b)** Fiona Ryan, CEO, is considering whether an alternative system of performance evaluation and reward may be appropriate in order to motivate goal congruent decision-making by the Venus division manager.

REQUIREMENT:

Evaluate (with appropriate supporting calculations where appropriate) each of the following options in this regard. (NB: consider each of the three proposals separately).

- (i) Use Residual Income as the performance measure (non-current assets would continue to be depreciated on a straight-line basis).
- (ii) Continue to use ROI as the performance measure, but with non-current assets being depreciated in a new way. Specifically, the new method of depreciation would ensure that the ROI of any new investment in fixed assets would be equal to the investment's IRR in each year of the asset's life.
- (iii) Retain the existing performance measure (i.e., ROI with straight-line depreciation) but allow Fiona Ryan to take into account additional considerations as she sees fit when deciding whether or not the Venus division manager should be paid bonuses.

(12 marks)

[Total: 24 Marks]

3. The **Jupiter Division** produces and markets one of the Group's main products. The division manager, John Black, uses variance analysis systems to analyse the performance of the departments which make up the division. However, Fiona Ryan is concerned that John is not sufficiently rigorous in using the variance analysis systems to hold departmental managers accountable for their performance.

As an example, you are provided with the following extract from the budgeted and actual results of Jupiter Division's production department for last month:

	Budget	Actual
Units of output	5,000	5,300
Raw materials purchased and used	20,000 kg.	23,850 kg.
Price paid per kg.	€20.00	€23.50

John Black received a variance analysis report based on this data, which identified an unfavourable raw materials use variance of €53,000 and an unfavourable raw materials price variance of €83,475. When John met with his colleagues to try to identify the underlying causes of these unfavourable variances, their explanations were as follows:

The purchasing manager (Joe Green) explained that he had accepted an offer from the materials supplier to switch to buying what the supplier called a "superior grade" of raw material. This is normally sold for €25 per kg. and was offered to Joe at a special introductory discount. The production manager (Mary Grey) stated that front-line production staff had found the supposedly "superior grade" of raw material to be prone to increased breakage and wastage, and as a result, Mary had granted her staff an increased standard of 4.8 kgs of raw material per unit of output.

REQUIREMENT:

- (a) Prepare a detailed planning and operational variances for the raw materials. In answering this part, assume that standard costs are revised ex post in accordance with the explanations offered by Joe Green and Mary Grey.

(10 marks)

- (b) Critically evaluate the extent to which this breakdown of raw material variances into planning and operational elements enables John Black to assess the controllable performances of Joe Green and Mary Grey.

(7 marks)

- (c) Assume that the following additional information about the Jupiter Division is also available:

All output is sold in the month when it is produced, and last month's report on the performance of the division's sales and marketing department shows the following:

- An unfavourable sales volume variance of €30,000 (consisting of an unfavourable market size variance of €250,000 and a favourable market share variance of €220,000).
- A favourable sales price variance of €10,000.

Critically analyse the performance of the Jupiter Division, making use of this information about the sales and marketing department in your answer. Assume that the division uses a marginal costing system.

(5 marks)

[Total: 22 Marks]

4. The **Neptune Division** has been operating at a loss for a number of years. This division, which operates a large independent bookshop in a provincial Irish city, has been unable to develop a successful strategy to compete against online book retailers. Tom Waters, the Neptune Division manager, explains the situation as follows: *“We can’t match the online retailers in terms of price or the sheer number of titles which they offer. Although the browsing experience is far better in a real bookshop than on a website, it’s remarkably difficult to translate that into sales in our shop. For example, many people come into our shop and spend an hour browsing through our books, then they buy nothing and instead purchase their chosen books at lower prices online. Neptune Division has to run as a profitable business if it is to survive, but at present we have lots of visitors who treat us a showroom but never actually buy anything”.*

Tom has featured on many occasions on local radio and other media appealing to people to “support their local independent bookshop” but he feels that the message (although received sympathetically in principle) has made little real difference in practice to people’s shopping habits. Fiona Ryan has warned Tom that his division faces closure in the near future unless he can identify and begin to implement successful competitive strategies which will achieve financial success for the Neptune Division.

REQUIREMENT:

- (a) Recommend three competitive strategy options for the Neptune Division. Justify in detail the options which you propose, and specify why they would be effective in the particular circumstances in which the Neptune Division currently finds itself. (12 marks)
- (b) The staff in the Neptune Division’s bookshop have traditionally been paid bonuses linked to the levels of net profit achieved. What changes to this arrangement should be proposed in light of the new competitive strategies? Justify your answer. (4 marks)

[Total: 16 Marks]

- 5.** The **Saturn Division** manufactures a precision component. Manufacturing costs are €3 per unit (variable) and €100,000 per month (fixed). 10,000 components per month are sold to an external customer (Orbit Ltd.) at a price of €12 each. Orbit would be willing to purchase additional components at this price, but the remaining production capacity of the Saturn Division is used to produce 15,000 components for transfer to the Pluto Division.

The Pluto Division manufactures an electronic product (the 'EP'). Three of Saturn's components are required for each EP, and there is no other source of supply for these components. Pluto's other costs are €4 per EP (variable) and €200,000 per month (fixed). Pluto produces and sells 5,000 units of the EP each month at a price of €90 each. This represents the maximum demand for the EP and is also the maximum production capacity of the Pluto Division.

The divisions have negotiated a two-step transfer pricing arrangement. First, the Pluto Division reimburses the Saturn Division for the variable cost of components transferred. Second, the Pluto Division makes a monthly lump sum payment to the Saturn Division equal to 125% of Saturn's fixed costs.

REQUIREMENT:

- (a)** Show the total monthly profit of each division on the basis of the data presented above (provide workings).
(6 marks)
- (b)** Critically assess whether the two divisions are behaving in a manner which is congruent with the interests of Planet Group Plc as a whole. Support your answer with appropriate calculations.
(7 marks)

[Total: 13 Marks]

[Total: 100 Marks]

END OF PAPER

SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND STRATEGIC PERFORMANCE MANAGEMENT

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SOLUTION 1

(a) Selling prices

- Total costs = €170,000 per month.
- Total output per month = 40,000 + 10,000 = 50,000 kg.
- Hence cost of each product = €170,000 / 50,000 kg = €3.40 per kg.
- Selling price of HSB = €3.40 + 40% = €4.76 per kg.
- Selling price of EFC = €3.40 + 25% = €4.25 per kg.

Total amount of each activity:

	HSB	EFC	Total
Chopping	40,000 kg / 50 kg per hour = 800 hours	10,000 kg / 25 kg per hour = 400 hours	1,200 hours
Packaging operations	40,000 kg / 100 kg per hour = 400 hours	10,000 kg / 40 kg per hour = 250 hours	650 hours
Quality control	45 inspections	15 inspections	60 inspections

Cost driver rates:

Chopping	€42,000 / 1,200 hours	= €35 per hour
Packaging operations	€19,500 / 650 hours	= €30 per hour
Quality control	€7,800 / 60 inspection	= €130 per inspection

Total costs of each product:

	HSB	EFC
Raw materials	(4/5) * €90,000 = €72,000	(1/5) * €90,000 = €18,000
Packing materials	€6,700	€4,000
Chopping	800 hours @ €35 per hour = €28,000	400 hours @ €35 per hour = €14,000
Packaging operations	400 hours @ €30 per hour = €12,000	250 hours @ €30 per hour = €7,500
Quality control	45 inspections @ €130 = €5,850	15 inspections @ €130 = €1,950
Total cost	€124,550	€45,450

Profitability of each product:

	HSB	EFC
Price per kg.	€4.76	€4.25
Cost per kg.	€124,550 / 40,000 = €3.11375	€45,450 / 10,000 = €4.545
Profit (Loss) per kg.	Profit €1.64625	Loss €0.295

(b) Ways in which the Division Manager could use the answer to part (a) so as improve the Division's profitability and competitiveness:

- One way to improve profitability is to consider modifying product prices so that they more closely reflect the costs of the product. The existing prices are based on a calculated cost of €3.40 per kilogram for both products, whereas the activity-based analysis reveals that the costs of the two products are significantly different from each other (approximately: HSB €3.11 and EFC €4.55). Therefore, at present prices, the EFC is (in effect) being subsidised by the HSB. The HSB is in a sense "too profitable"; its existing selling price may come under competitive pressure in the near future.

Of course, it does not follow that there should be a "knee-jerk" change of product price, since "what the market will bear" is an important practical consideration. In particular, although the EFC is loss-making at its present 25% markup, Mercury Division has already experimented unsuccessfully with a higher markup. At this higher markup the price was apparently €4.76 (the same as the HSB) but this price was not sustainable against competitors, and is in any case very close to the cost (€4.545) which the Division incurs in producing the EFC. Instead, the solution in achieving profitability for the EFC lies in achieving cost savings in the ways suggested below.

- The costs arising from any cost driver activity can be reduced by performing the activity more cheaply (i.e., by lowering the cost driver rate) and/or by performing the activity less often. For example:
 - o Reduce the frequency of quality control inspections. These are occurring approximately once every two days in the production of EFC at present. For example if this could be changed to once every three days then the monthly cost savings would be approximately (5 inspections eliminated) * €130 = €650.
 - o Find ways of reducing the hourly cost of the "packing" activity, e.g., by increased automation. For instance, if this cost driver rate could be reduced by €5 per hour then the total savings to the division per month would be (650 hours * €5) = €3,250.
- Another way to secure the long-profitability and competitiveness of operations would be for Mercury Division to achieve cost savings and then pass these cost savings on to the customer through price reductions. In this example, the EFC is disproportionately expensive to package. Specifically, the EFC is equivalent to only (10,000 / 40,000 = 25%) of the production volume of the HSB, but:
 - o Packing materials for the EFC cost (€4,000 / €6,700 = approximately 60%) of those for the HSB;
 - o The EFC (40 kilograms per hour) is much slower to pack than the HSB (100 kilograms per hour).

If Mercury Division can identify a cheaper and simpler form of packaging for the EFC, then this will generate cost savings which could be used to fund price reductions which would strengthen its complete position in relation to this product.

Tutorial notes

- *Purpose of question:* To require candidates to carry out an activity-based analysis in order to facilitate management of the profitability and competitiveness of a division's product ranges (Syllabus Area 1).
- *Options:* Calculations may validly be laid out in a variety of ways in the answer to part (a). Various alternative points and examples are acceptable in answer to part (b).

- *Essential components:* Candidates need to use all of the available data to carry out the activity-based profitability analysis in part (a), including determination of cost driver rates, activity levels, and existing product prices. In part (b) it is essential that candidates present a realistic and comprehensive evaluation of how the information can be used, identifying in particular that significant price increases are not feasible for the EFC product and that the other means of improving profitability and competitiveness need to be used.

Marking Scheme for Question 1

(a)	Product prices on existing basis	3
	Activity levels and cost driver rates	8
	Cost and profitability of each product	4
(b)	Price changes to reflect production costs	3
	Managing cost driver rates and / or frequency of activities	4
	Achieving cost savings in order to fund selling price reductions	3
TOTAL:		25

SOLUTION 2

(a)

	Year 1	Year 2	Year 3	Year 4
Cash inflow	€40,000	€60,000	€70,000	€76,120
Depreciation = €200,000 / 4	€50,000	€50,000	€50,000	€50,000
Net profit (loss)	(€10,000)	€10,000	€20,000	€26,120

	Year 1	Year 2	Year 3	Year 4
Net book value at beginning of year	€200K	200 - 50 = €150K	150 - 50 = €100K	100 - 50 = €50K

	Year 1	Year 2	Year 3	Year 4
ROI	Minus €10K / €200K = Minus 5%	€10K / €150K = 6.7%	€20K / €100K = 20%	€26,120 / €50K = 52.2%

- It seems very unlikely that the Venus Division Manager would accept the proposed investment. The division's existing ROI is 12% and this new investment would decrease this average (and the division manager's bonus) in each of the next two years. There is no likelihood that the Venus Division Manager would accept "two good years" (in Y3 and Y4) in return for "two bad years which come earlier" (in Y1 and Y2).
- This likely decision to reject the proposed investment is not likely to lead to the maximisation of shareholder wealth. Acceptance of the proposed investment would be likely to add to shareholder wealth because its IRR (8%) is well in excess of the cost of capital (5%).

(b)

(i)

	Year 1	Year 2	Year 3	Year 4
Net profit (loss): as above	(€10,000)	€10,000	€20,000	€26,120
Less: Finance charge	5% * €200K = €10K	5% * €150K = €7,500	5% * €100K = €5K	5% * €50K = €2,500
Residual income	(€20,000)	€2,500	€15K	€23,620

- This is slightly more likely to achieve goal congruence since there is a positive effect on the performance measure from Year 2 onwards (with Residual Income) rather than an improvement from Year 3 onwards (with ROI). But even with Residual Income the division manager may reject the investment if he is particularly concerned with the immediate (i.e., Year 1) effect.
- (ii) • This method would remove the uneven trend in ROI which emerged in part (a). This new method would give an ROI of 8% in each year of the proposed investment's life. This is an improvement on the existing depreciation method which (because of the shrinking asset base and equal annual depreciation) results in the lowest rate of ROI being achieved in the year to which the division manager attaches the greatest significance (i.e., Year 1).
 - However the new method still does not ensure that the division manager would take a decision consistent with the maximisation of shareholder value. In relation to any new investment proposal the Venus Division Manager is likely to assess the effect on ROI of adding the new investment to the division's existing investments. In this case an ROI of 8% for the proposed new investment would reduce the division's existing ROI (12%). So the division manager would continue to reject the investment, which is a decision not consistent with maximisation of shareholder wealth as indicated earlier.
- (iii) • This is a different approach to goal congruence. It recognises that there no refinement to the performance measure is likely to make it "perfect" in terms of goal congruence. Instead, the group may acknowledge the limitations of the measure and also recognise that the assessment of the division manager's performance cannot be based on one metric alone.

- This helps to circumvent the problem that a controlee can probably “game” almost any metric, i.e., “improve” the reported number while not helping (and perhaps even damaging) shareholder wealth. For example, if Fiona Ryan believes that a reduction in ROI reflects an action which is ultimately beneficial to shareholders in the long run (such as maintenance or advertising spend) then it may be wise and appropriate to pay the division manager’s bonus so as to reward good (and far-sighted) decision-making.
- Of course, a downside to this is that it introduces uncertainty into the control system and (in that sense) may weaken its effectiveness. If the Division Manager forms the belief that “I may achieve my ROI target but nevertheless be deprived of a bonus on the whim of my superiors” then this reduces the incentive to work hard so as to achieve good ROI performance.

Tutorial notes

- *Purpose of question:* To require candidates to evaluate the likely consequences of certain divisional performance evaluation arrangements (Syllabus Area 3).
- *Options:* There is some scope for variation within the detailed points made in answer to part (a) and the various sub-parts of part (b).
- *Essential components:* In part (a), candidates need to be able to select the type of calculations required and to carry them out. They also need to correctly identify the likely managerial decision and the implications for shareholders. As implied by the question, marks will not be awarded in part (a) for calculating project NPV since the right decision in terms of shareholder wealth maximisation preferences can be identified using the information provided in the question (IRR and cost of capital). In part (b) candidates need to be able to calculate Residual Income and to evaluate the three possible changes to the system of performance evaluation and reward.

Marking Scheme for Question 2

(a)	Calculation of ROI	6
	Division manager’s likely decision	4
	Why the manager’s likely decision will not maximise shareholder wealth	2
(b)		
(i)	Residual income: calculation	2
	Residual income: likely impact on goal congruence	2
(ii)	Proposal to use ROI with a different depreciation method	4
(iii)	Proposal to bring an element of discretion into the award of bonuses	4
TOTAL:		24

Solution 3

(a)

- Ex ante standard raw materials per unit of output = 20,000 kg. / 5,000 = 4 kg.

- Standard and actual data:

XASQ = 5,300 units * 4 kg = 21,200 kg.
XPSQ = 5,300 units * 4.8 kg = 25,440 kg.
AQ = 23,850 kg.
XASP = €20 per kg.
XPSP = €25 per kg.
AP = €23.50 per kg.

- Planning variances:

Price: $(XPSP - XASP) * XPSQ = (€25 - €20) * 25,440 = €127,200$ U
Use: $(XPSQ - XASQ) * XASP = (25,440 - 21,200) * €20 = €84,800$ U

- Operational variances:

Price: $(AP - XPSP) * AQ = (€23.50 - €25) * 23,850 = €35,775$ F
Use: $(AQ - XPSQ) * XPSP = (23,850 - 25,440) * €25 = €39,750$ F

(b)

- It isn't at all clear in this case that the supposedly "planning" variances are uncontrollable and that the supposedly "operational" variances are controllable. Therefore it's not clear that the analysis is helpful in facilitating analysis of the controllable performance of Joe Green and Mary Grey. The specific considerations are as follows:
- Joe Green: It was Joe's decision to switch to the new type of raw material, and he must accept responsibility for the consequences (including, but not limited to, the higher purchase cost). He has bought a more expensive raw material, costing €23.50 rather than €20 per kilogram. His only justification for treating part of the cost overrun as a favourable operational variance is that the "normal" price of the raw material is €25; he claims to have "saved" the company ($€25 - €23.50 = €1.50$ per kilogram). But there are numerous flaws in this thinking. First, he could have saved the company even more money just by remaining with the existing raw material (which costs €20). Second, the supposed €1.50 "saving" is apparently only an introductory discount and therefore unlikely to recur: far from congratulating Joe on gaining a discount, John might reasonably reprimand him for having naively accepted a rather dubious special offer. Third, there is as yet no evidence of any benefits from the supposedly "superior" raw materials anywhere elsewhere in the division's value chain, e.g., more (not less) raw materials are apparently now needed per unit of output.
- Mary Grey: Unlike Joe, Mary can claim that she was affected by an event uncontrollable by her (namely, the type of raw material supplied to her staff). However, the division should think critically before accepting that the additional raw material usage was uncontrollable to the extent which Mary decided (4.8 kg. per unit of output). Mary and her front-line staff have a mutual interest in the acceptance of a more lax standard of raw materials per unit of output, since it can generate favourable variances for both. John Brown has an obligation to assess whether Mary was correct to specify 4.8 kg. as the standard – on the one hand she may have been justified; on the other hand she may have been simply "hiding behind the excuse" of a change in the type of raw material so as to lower the division's expectations of her and of her front-line staff. Ultimately, the amount of raw materials used has increased at significant cost to the division, so John Brown should not too lightly accept Mary's contention that the reason for this was beyond her control.

(c)

- The sales and marketing activities of the division have been remarkably successful, at least to the extent that the outcome of those activities are within the division's control. The division has gained market share from its competitors (earning extra contribution of €220,000) while at the same time actually managing to increase its prices above budget level (favourable materials price variance = €10,000).

- It is possible that the division managed to achieve this remarkable feat (of increasing both market share and selling prices) by increasing product quality, specifically by means of the change in type of raw material as discussed earlier in the question. As shown above this change in raw materials came at considerable cost (in terms of both price and usage) but the combined effects of these cost increases are less than the combined benefits of the sales price and market share variances.
- A market size variance is (by definition) not controllable by the division. So although it was unfortunately both large (€250,000) and unfavourable in this case, it is of no relevance in an assessment of controllable performance.

Tutorial notes

- *Purpose of question:* To require candidates to apply (and critically evaluate the usefulness of) advanced variance analysis system for purposes of assessing controllable performance (Syllabus Area 2).
- *Options:* There is scope to lay out calculations in a variety of ways in the answer to part (a). In parts (b) and (c) there are various alternative points that can validly be made, although some points are essential (see below).
- *Essential components:* In part (a) candidates need to be able to demonstrate the ability to determine planning and operational variances. In part (b) candidates need to be able to critically evaluate the extent to which the distinction between planning and operational variances is useful in assessing controllable performance, and to identify the reasons why the usefulness of this distinction seems to be quite limited in this case. In part (c) candidates need to identify which of the sales and marketing variances are relevant to critical evaluation of controllable performance, and identify why the raw materials variances must be evaluated in conjunction with the sales and marketing variances in order to critically evaluate the division's overall performance.

Marking Scheme for Question 3

(a)	Planning and operational variances	10
(b)	Critical evaluation: Joe Green	4
	Critical evaluation: Mary Grey	3
(c)	Critical evaluation of division, including sales & marketing variances	5
TOTAL:		22

Solution 4

(a)

- Demonstrating the importance of the economic and social importance to the community of the survival of the independent retail sector, including (but not limited to) independent bookshops. The appeal which Tom is currently making (“support your local independent bookshop”) is falling on deaf ears, probably for two reasons: first, it relies on altruism with no element of appeal to people’s self-interest; second, the appeal is unnecessarily narrow because of its focus solely on bookshops rather than on raising the far more unsettling question for consumers of whether entire town shopping experiences are facing near-extinction due to online competition. A successful “community” initiative is possible: remind people that a world in which (for example) things like books, toys, hardware, and pharmaceutical items were ONLY available online would be a very unsatisfactory one for consumers. The Internet has arguably bred natural monopolies in many sectors (not least bookselling) and these monopolies now creates a real risk of practices which are not in consumers’ interests. And of course the demise of non-Internet shopping limits local employment and entrepreneurial opportunities. Neptune Division, particularly if it acts in cooperation with independent retailers in other sectors (toyshops, hardware, etc) can actively promote the message to consumers that it is important for their own best interests to ensure a thriving independent retail sector.
- Neptune Division needs to identify and develop aspects of its business which online retailers cannot. Understandably, Neptune Division resents being used as a “showroom” by visitors who never become customers. But what Neptune Division needs to do is to regard these visitors as an untapped resource; what value can Neptune Division add which will encourage these people to actually buy? Examples include Neptune Division stocking out-of-print, rare or antique titles. Given that the online sellers compete on price and on the number of titles offered, it is unlikely that they will provide much competition for Neptune in this area. Of course, this strategy would necessitate a particular investment by Neptune Division in its product-sourcing activities (e.g., buying inventory at house clearances, etc) and a willingness to tolerate slow inventory turnover as regards this type of item, but this is a necessary element of carving out this particular complete niche and offering potential customers a type of service (as well as physical products) which they cannot purchase on the Internet.
- Neptune Division should try to leverage some additional benefits from its physical presence in the particular city. These can include book-launch events, children’s storytime hours, and book groups. This would have two advantages. First, such activities may be commercially advantageous in themselves (e.g., a book-launch event will likely generate some immediate extra sales, and free publicity in local media). Second, quite apart from any immediate financial benefit, such events in themselves remind the community of the tangible benefits of having an independent retail sector and (by implication) what would be lost if that independent sector were to be driven out of existence by online competition.

(b)

- The business is already unprofitable, so the existing arrangement is already ineffective in the sense that no profit-related bonuses can arise. In any case, the priority for the business has (rightly) been set as “identifying complete strategies which will put it on the road to survival and profitability”. What is needed is a set of measures to indicate whether that is being achieved, and to provide the necessary motivation and reward.
- “Lead” measures indicating complete improvement and the likelihood of future financial success tend to be nonfinancial performance indicators. In this case these would likely include (a) proportion of visitors to the shop who actually make purchases; (b) total attendance at in-store “events” (book launches, bookgroups, etc.); (c) number of alliances formed with independent retailers in other sectors.

Tutorial notes

- *Purpose of question:* To require candidates to propose and advocate competitive strategies in a particular business context which includes the need to respond to very significant competition arising from developments in e-commerce (Syllabus Areas 4 & 5).
- *Options:* Candidates are free to suggest alternative complete strategies to those identified here in part (a) and to make alternative proposals for changing the existing performance arrangement, subject to the “Essential components” below.

- *Essential components:* In part (a) it is essential that candidates provide the required three options for competitive strategies, along with the required detailed justification. The suggestions made in part (b) must be appropriate to the context: a profit-driven incentive scheme is ineffective and not goal congruent in a division which is already loss-making and where the immediate need is for a new competitive strategy to ensure future financial success.

Marking Scheme for Question 4

(a)	Three options for competitive strategies @ 4 marks each	12
(b)	Changes to incentive arrangement	4
TOTAL:		16

Solution 5

(a)	Saturn Division	Pluto Division
Sales (external)	10,000 @ €12 = €120,000	5,000 @ €90 = €450,000
Transfer revenue: Variable	15,000 @ €3 = €45,000	
Transfer revenue: Fixed	€100,000 * 125% = €125,000	
Total revenue	€290,000	€450,000
Fixed costs	€100,000	€200,000
Variable costs	(10,000 + 15,000 = 25,000) * €3 = €75,000	5,000 @ €4 = €20,000
Transfer costs: Variable		€45,000
Transfer costs: Fixed		€125,000
Total costs	€175,000	€390,000
Profit	€115,000	€60,000

(b)

- Both divisions are at full capacity. So the only possibility of “better” outcomes is if EITHER using the components in a different way OR leaving some capacity idle would be preferable. These possibilities can be assessed as follows:

FIRST: Maximum Pluto capacity is 5,000 units of EP (which requires $5,000 * 3 = 15,000$ of Saturn's component):

- Incremental contribution per EP = $€90 - €4 - (3 * €3) = €77 \Rightarrow$ EP has a positive contribution for the whole Group.
- Would it be more profitable for the whole Group if Saturn were to sell extra components to Orbit Ltd. rather than transfer them to Pluto:
 - Pluto: Contribution from EP = €77 (above).
 - Orbit: Contribution from the three components which go into an EP = $[(€12 - €3 = €9) * 3 \text{ components}] = €27$.
 - Clearly $€77 > €27$ so it is preferable that EP be produced to the maximum extent possible, which is what is happening at present.

NEXT: Saturn has capacity to make a further 10,000 components for Orbit:

- From above: Contribution per component made for Orbit = €9.
- Hence better to produce for Orbit than to leave capacity idle and earn €NIL contribution.

So the existing behaviour of the two divisions is congruent with the best interests of the shareholders.

Tutorial notes

- Purpose of question:* To assess candidates' ability to implement a transfer pricing system and to assess whether it is goal congruent (Syllabus Area 3).
- Options:* The precise sequence of calculations and assessment can vary from that presented here.
- Essential components:* In part (a) it is essential to present the profit calculation for each division, reflecting the transfer pricing system in operation. In part (b) it is essential to show that alternative actions are suboptimal to those currently being carried out, so as to show that the divisions are acting in a goal congruent fashion at present.

Marking Scheme for Question 5

(a)	Profit of both divisions with the existing transfer pricing scheme	6
(b)	Assessment of goal congruence	7
TOTAL:		13