Performance Management (PM) March/June 2022 Examiner's report

The examining team share their observations from the marking process to highlight strengths and weaknesses in candidates' performance, and to offer constructive advice for those sitting the exam in the future.

Contents

General comments

This examiner's report should be used in conjunction with the published March/June 2022 sample exam which can be found on the ACCA Practice Platform.

In this report, the examining team provide constructive guidance on how to answer the questions whilst sharing their observations from the marking process, highlighting the strengths and weaknesses of candidates who attempted these questions. Future candidates can use this examiner's report as part of their exam preparation, attempting question practice on the ACCA Practice Platform, reviewing the published answers alongside this report.

The Performance Management (PM) exam is offered as a computer-based exam (CBE). The model of delivery for the CBE exam means that candidates do not all receive the same set of questions. In this report, the examining team offer detailed debriefs of selected questions from each section of the exam.

- Section A objective test questions – we focus on four specific questions that caused difficulty in the March/June 2022 sittings of the exam.
- Section B objective test case questions – here we look at one case from section B in detail.
- Section C constructed response questions – here we provide commentary on two questions, providing guidance on answering these questions and where exam technique could be improved, including in the use of the CBE functionality in answering these questions.

Section A

In this section we will look at **FOUR** Section A questions which proved to be particularly difficult for candidates.

Example 1

Double Co provides a photocopying service for clients at a price of $0.10 per copy. It needs to choose which of two new photocopier models to rent. The costs of each photocopier model are given in the following table:

Photocopier model	**S**	**T**
Annual rental cost	$10,000	$8,000
Cost per copy	$0.03	$0.05

What is the minimum number of copies per year at which model S would be preferred to model T?

Options:

A. 100,001

B. 142,857

C. 160,000

D. 150,000

What does this test?

✓ The calculation of the breakeven point

What is the correct answer?

✓ The correct answer is **A.100,001**

Although not presented in the traditional way, this question requires the calculation of a breakeven point – the point at which the total costs of the two photocopier models would be the same.

Let x = the number of copies.

The total cost of model S = $10,000 + 0.03x
The total cost of model T = $8,000 + 0.05x

Breakeven between the two models will occur where 10,000 + 0.03x = 8,000 + 0.05x

Therefore x = 2,000/0.02 = 100,000

At 100,000 copies, Double Co would be indifferent to the model selected, but for any copies above 100,000, model S would be preferred as it has the lower variable cost per copy.

If you want to confirm this, calculate the total cost for 100,001 copies:

The total cost of model S = $10,000 + (0.03 x 100,001) = $13,000.03
The total cost of model T = $8,000 + (0.05 x 100,001) = $13,000.05

Example 2

Match the stages required to the correct step number to describe the sequence used when operating target costing.

Stages required	Order of steps
Cost the product	Step 1
Determine the profit margin	Step 2
Set the selling price	Step 3
Use functional and value analysis	Step 4
Identify the cost gap	Step 5
Develop the product concept	Step 6

What does this test?

✓ The understanding of the process used in target costing

What is the correct answer?

The correct answer is

Step 1 Develop the product concept
Step 2 Set the selling price
Step 3 Determine the profit margin
Step 4 Cost the product
Step 5 Identify the cost gap
Step 6 Use functional and value analysis

Traditional pricing techniques such as cost-plus, take the production costs of a product and add on a required mark-up or margin to arrive at the selling price. Target costing works in a different way in that it consults the external market to ascertain the selling price that the market would accept.

Once a product concept has been developed, the company will take this to the market and use the feedback gathered to set the selling price. The company will then apply its required profit margin to this selling price and calculate the target production cost. This is the maximum cost which the company can incur in the production of the product and still earn the required margin. This target cost is then compared to the calculated cost of production and any cost gap is identified. The company must then use techniques such as functional and value analysis in order to close the cost gap.

Example 3

A company wants to know whether there is a correlation between the number of labour hours worked (x) and the value of factory overheads (y). The following figures have been calculated:

$\sum x$	89
$\sum y$	1,063
$\sum x^2$	1,047
$\sum y^2$	150,251
$\sum xy$	12,475
n	8

Which of the following statements, if any, is/are correct?

(1) The correlation coefficient is 0.9 (to one decimal place)
(2) 90% of the variation in factory overheads is explained by changes in the number of labour hours worked

Options:

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

What does this test?

✓ The calculation of the correlation coefficient and understanding of the coefficient of determination

What is the correct answer?

✓ The correct answer is **A. 1 only**

The correlation coefficient (r) must be calculated to decide if statement (1) is correct. The formula for this is given on the formula sheet:

$r = (n\sum xy - \sum x\sum y) / \sqrt{[(n\sum x^2-(\sum x)^2)(n\sum y^2-(\sum y)^2)]}$

All the figures required are given in the question. Take time to make sure all the correct figures are placed correctly into the formula.

Top line: $n\sum xy - \sum x\sum y = (8 \times 12{,}475) - (89 \times 1{,}063) = 5{,}193$

Bottom line: $\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]} = \sqrt{[(8 \times 1{,}047 - 89^2)(8 \times 150{,}251 - 1{,}063^2)]} = \sqrt{(455 \times 72{,}039)} = 5{,}725$

Therefore $r = 5{,}193 / 5{,}725 = 0.907 = 0.9$ to one decimal place. Statement 1 is correct.

Statement 2 relates to the coefficient of determination (r^2).

$r^2 = 0.9^2 = 0.81 = 81\%$. This means that 81% of the variation in factory overheads is explained by the change in the number of labour hours worked and therefore statement 2 is incorrect.

Example 4

Return on investment (ROI) and residual income (RI) are commonly used divisional performance measures.

Match the following statements about the advantages and disadvantages of the performance measures to whether they apply to ROI only, RI only or both.

Statements	Performance Measure	
Improves due to the use of carrying value in asset valuation		Residual income (RI) only
In the short-term it can conflict with net present value (NPV) indicators		Return on investment (ROI) only
Always increases when new investments earn returns greater than the cost of capital		Both residual income (RI) and return on investment (ROI)
Facilitates the comparison of managerial performance in divisions of different sizes		Both residual income (RI) and return on investment (ROI)

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In the short-term it can conflict with net present value (NPV) indicators	Both residual income (RI) and return on investment (ROI)

Take each statement in turn and consider whether it relates to only ROI, only RI, or both, bearing in mind that one will relate only to RI, one will relate only to ROI and two will relate to both.

Statement 1: Improves due to the use of carrying value in asset valuation. Consider the calculations for both:

- ROI = PBIT/capital employed
- RI = PBIT – (capital employed x imputed cost of capital)

The lower the carrying value, the lower the capital employed and the higher both measures will be. This statement relates to both.

Statement 2: In the short-term it can conflict with net present value (NPV) indicators. Projects with positive NPVs would increase shareholder wealth and should be undertaken. The conflict with RI/ROI and NPV can come where managers are reluctant to invest in projects with positive NPVs as these investments would cause RI and ROI to reduce (due to the increase in assets).

Statement 3: Always increases when new investments earn returns greater than the cost of capital. RI will always improve if returns exceed the cost of capital, however ROI may not increase if the existing return is very high.

Statement 4: Facilitates the comparisons of managerial performance in divisions of different sizes. ROI being a relative measure is good for comparing divisions of different sizes, whereas RI, as an absolute measure, does not.

Section B

In this section we will look in detail at a case covering make or buy and other short-term decisions from syllabus area C – Decision-making techniques.

Horngren Co

Horngren Co manufactures a range of dairy products. It produces three types of yoghurt which it sells in 2 kg tubs to hotels and holiday resorts.

Details of demand, costs and selling prices for the three types of yoghurt are as follows:

Product	**Natural**	**Fruity**	**Luxury**
Maximum demand per month (units)	5,000	10,000	15,000
	$ per unit	**$ per unit**	**$ per unit**
Selling price	15	22	30
Direct labour	4	8	12
Direct material	3	3.75	4.50
Fixed production overhead	1	4	6

Notes:

(1) Direct labour is paid at a rate of $8.00 per hour

(2) Direct material costs are $1.50 per kg

(3) The fixed production overhead is absorbed using a machine hours basis at a rate of $1 per hour. Fixed production overheads are a joint cost of the three products

An external supplier has offered to supply units of Natural, Fruity and Luxury for $11, $17 and $25 per unit respectively.

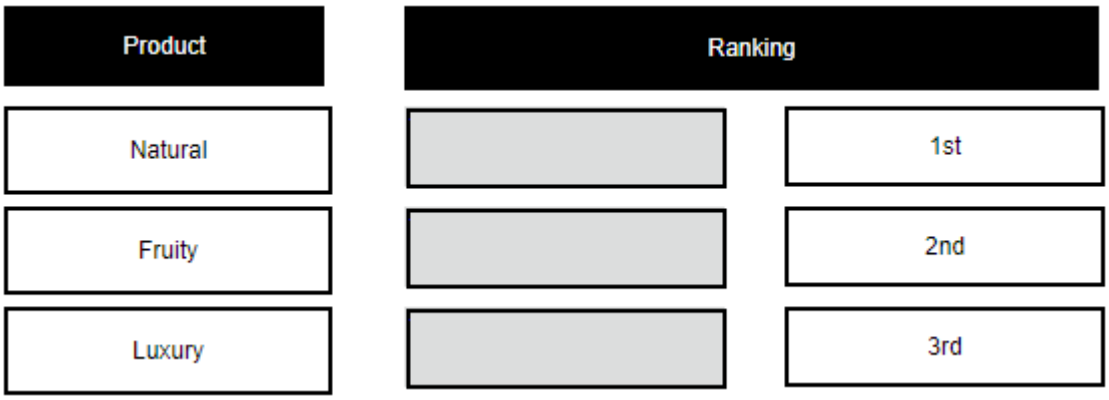
Horngren Co predicts the following availability of resources over the next three months:

	Direct labour	**Direct material**	**Machine capacity**
Month 1	36,000 hours	75,000 kg	140,000 hours
Month 2	unlimited	unlimited	120,000 hours
Month 3	27,000 hours	unlimited	unlimited

Direct material and the products made are perishable and thus no inventory is held.

Question 1

For Month 1 rank the products in the order of preference for making internally.



✓ The correct answer is **1st: Luxury, 2nd: Fruity, 3rd: Natural**

First, establish which of direct labour, direct material or machine capacity is the limiting factor.

	Required	**Available**
Direct labour	(5,000 x 4/8) + (10,000 x 8/8) + (15,000 x 12/8) = 35,000 hours	36,000 hours
Direct material	(5,000 x 3/1.50) + (10,000 x 3.75/1.50) + (15,000 x 4.5/1.50) = 80,000 kg	75,000 kg
Machine capacity	(5,000 x 1/1) + (10,000 x 4/1) + (15,000 x 6/1) = 135,000 hours	140,000 hours

Therefore, direct material is the limiting factor. Now rank the products based on their contribution per unit of limiting factor.

Product	**Natural**	**Fruity**	**Luxury**
Contribution ($)	8	10.25	13.50
Material kg per unit	2	2.5	3
Contribution per kg of material ($)	4.00	4.10	4.50
Ranking	**3**	**2**	**1**

Question 2

In Month 2 how many units of Fruity should Horngren Co buy from the external supplier assuming the company wants to maximise profit?

_____ **units**

The correct answer is **3,750 units**

In month 2 the limiting factor is machine capacity. Calcualte the ranking of the products based on the cost saved by making per unit of limiting factor.

Product	**Natural**	**Fruity**	**Luxury**
Buy in cost ($)	11	17	25
Variable cost of making ($)	7	11.75	16.50
Cost saved by making ($)	4	5.25	8.50
Machine hours per unit	1	4	6
Cost saved per machine hour	4	1.3125	1.416
Rank	1	3	2

This shows that the products should be made in the order of Natural, Luxury then Fruity.

Machine hours available	120,000
Make 5,000 units of Natural (use 5,000 x 1)	5,000
Make 15,000 units of Luxury (use 15,000 x 6)	90,000
Remaining hours available for Fruity	25,000

The remaining hours are enough to make (25,000/4) = 6,250 units. Therefore, buy in (10,000 – 6,250) = 3,750 units.

Question 3

In Month 3 Horngren Co correctly calculates that it should be able to make 5,000 units of Natural, 15,000 units of Luxury and 2,000 units of Fruity internally. The balance of Fruity required should be bought from the external supplier.

How would this plan change if making Fruity internally incurred an incremental fixed cost of $8,000?

Options:

A. The plan would not change

B. All units of fruity would be bought externally

C. All units of Fruity would be made internally

D. 4,500 units of Fruity would be made internally

The correct answer is **A. The plan would not change**

Making Fruity internally gives a saving on variable cost of $5.25 per unit ($17 - $11.75). As 2,000 units are being made internally, this saves ($5.25 x 2,000) = $10,500 which is more than the incremental fixed cost. The plan would therefore be unchanged.

Question 4

Horngren Co is considering outsourcing the management of its site, including security, cleaning and general maintenance work to a well-established facilities management company.

Which TWO of the following statements about this plan are correct?

Options:

A. Economies of specialisation should mean that Horngren Co will make some cost savings

B. Horngren Co will no longer need to monitor these areas of its organisation

C. There will be an increase in Horngren Co management's control over these areas

D. Management will be able to concentrate more on Horngren Co's core activities

The correct answers are **A and D**

Because of its specialisation the facilities management company might be able to do the job cheaper than Horngren Co, allowing Horngren Co to make some cost savings.

By outsourcing these functions, Horngren Co's management will have more time to focus on its core business activities.

B is incorrect as services provided by outside suppliers will still need to be monitored by Horngren Co to ensure they are being done to the standards required.

C is incorrect as much of the control over these activities will be passed to the external party, and Horngren Co's management's control is likely to decrease.

Question 5

Which of the following statements about joint products is/are true?

(1) Joint products are accounted for in the same way as by-products from a process
(2) Joint products are indistinguishable from each other until the separation point

Options:

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

The correct answer is **B. 2 only**

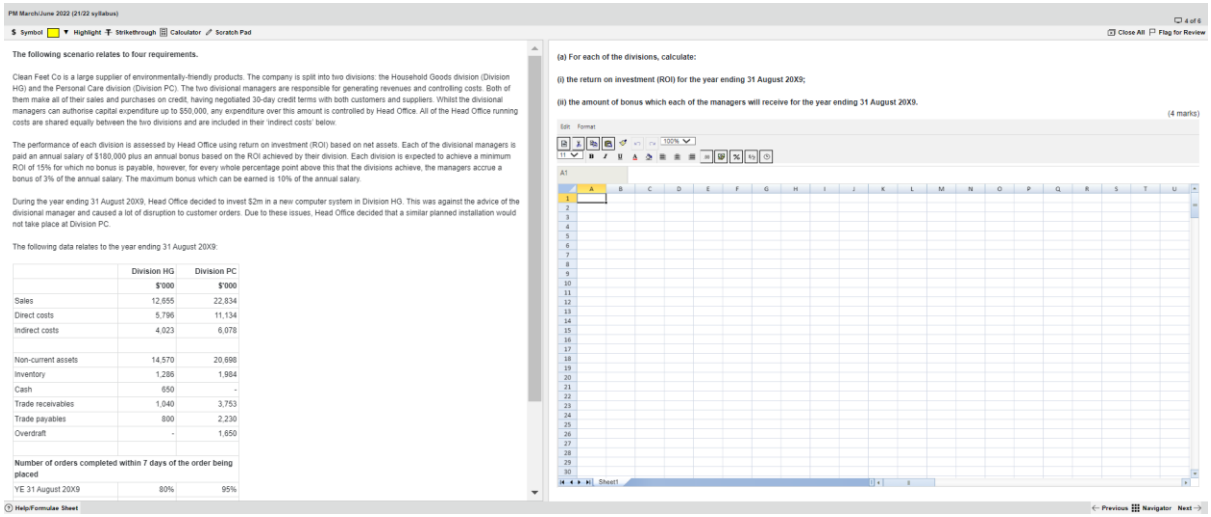
Statement (1) is not true. Joint products are accounted for separately in the accounts and are not treated in the same way as by-product.

Statement (2) is true. Joint products are normally only identifiable at their split-off/separation point.

Section C

In this section we will look in detail at TWO constructed response questions from different syllabus areas. The full questions and solutions have been published and are available on the ACCA Practice Platform.

Question 1 – Clean Feet Co



The following scenario relates to four requirements.

Clean Feet Co is a large supplier of environmentally-friendly products. The company is split into two divisions: the Household Goods division (Division HG) and the Personal Care division (Division PC). The two divisional managers are responsible for generating revenues and controlling costs. Both of them make all of their sales and purchases on credit, having negotiated 30-day credit terms with both customers and suppliers. Whilst the divisional managers can authorise capital expenditure up to $50,000, any expenditure over this amount is controlled by Head Office. All of the Head Office running costs are shared equally between the two divisions and are included in their 'indirect costs' below.

The performance of each division is assessed by Head Office using return on investment (ROI) based on net assets. Each of the divisional managers is paid an annual salary of $180,000 plus an annual bonus based on the ROI achieved by their division. Each division is expected to achieve a minimum ROI of 15% for which no bonus is payable, however, for every whole percentage point above this that the divisions achieve, the managers accrue a bonus of 3% of the annual salary. The maximum bonus which can be earned is 10% of the annual salary.

During the year ending 31 August 20X9, Head Office decided to invest $2m in a new computer system in Division HG. This was against the advice of the divisional manager and caused a lot of disruption to customer orders. Due to these issues, Head Office decided that a similar planned installation would not take place at Division PC.

The following data relates to the year ending 31 August 20X9:

	Division HG	Division PC
	$'000	$'000
Sales	12,655	22,834
Direct costs	5,796	11,134
Indirect costs	4,023	6,078
Non-current assets	14,570	20,698
Inventory	1,286	1,984
Cash	650	-
Trade receivables	1,040	3,753
Trade payables	800	2,230
Overdraft	-	1,650
Number of orders completed within 7 days of the order being placed		
YE 31 August 20X9	80%	95%

(a) For each of the divisions, calculate:

(i) the return on investment (ROI) for the year ending 31 August 20X9;

(ii) the amount of bonus which each of the managers will receive for the year ending 31 August 20X9.

(4 marks)

This question is from the Divisional Performance Measurement area of the syllabus (syllabus area E), focussing primarily on Return on Investment (ROI) and working capital management. It is split into three requirements, with part (a) a relatively straightforward calculation question, part (b) a fairly traditional performance management question and part (c) required the candidate to discuss whether ROI is a suitable basis for assessing performance and calculating bonuses in this scenario.

Clean Feet Co is a divisionalised company, split into two divisions. The performance of each division is assessed by Head Office using return on investment (ROI) based on net assets. The managers of each division can achieve bonuses based on these ROI calculations.

Looking at each part in detail:

Requirement (a)(i)/(ii) – 4 marks

(a) For each of the divisions, calculate:

(i) the return on investment (ROI) for the year ending 31 August 20X9;

(ii) the amount of bonus which each of the managers will receive for the year ending 31 August 20X9.

Part (a) required two calculations – divisional ROI for each division and the bonuses due to each manager. It was pleasing to see that most candidates were able to perform well in this requirement.

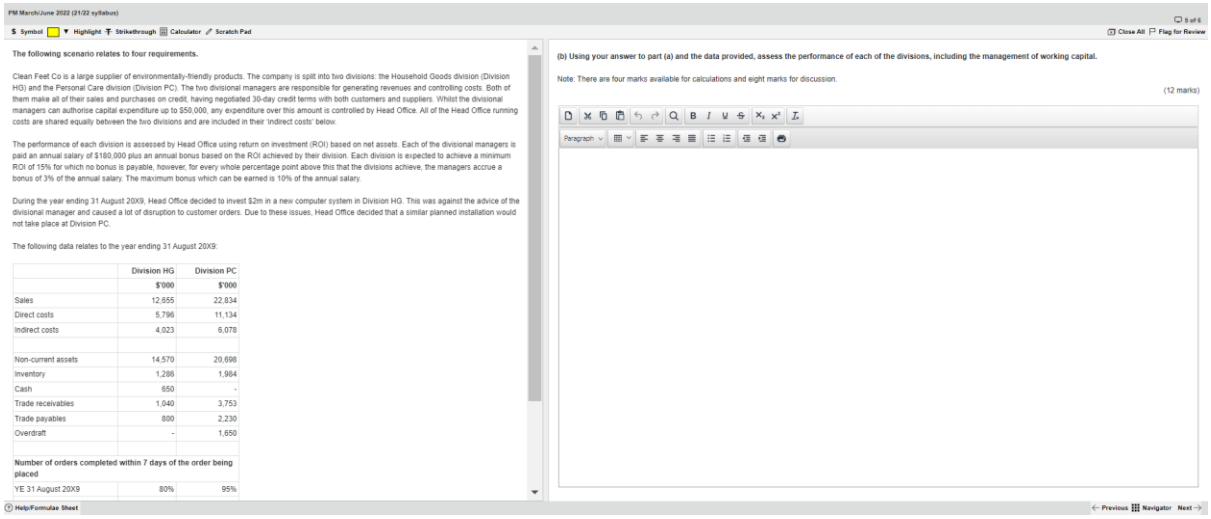
A difficulty faced in ROI calculations is that the calculation for ROI can vary slightly from scenario to scenario. In general, for a divisional performance question, ROI=Divisional Profit/Divisional Capital Employed (as a percentage). However, there are variations on which profit and/or capital employed figure is used. For the Divisional Capital Employed, the scenario says that the ROI is based on net assets, so that figure should be used

In this scenario, no specific guidance was given on which profit figure is used, so the operating profit figure (sales-direct costs-indirect costs) should be used. For the indirect costs, the scenario states “All of the Head Office running costs are shared equally between the two divisions and are included in their ‘indirect costs’”. This tells us that indirect costs include some uncontrollable head office costs. Ideally ROI would be calculated using controllable profits only, however there is not enough information given to calculate the uncontrollable indirect costs, therefore the indirect cost figure given in the scenario must be used.

The most common mistake in calculating the ROI was to include the overdraft as an asset rather than a liability in net assets, or not including it at all. This may have been down to not reading the scenario carefully enough, so take care to read everything carefully.

The bonus calculation was done well – those who did make a mistake on the ROI calculation were still able to pick up the marks here due to follow-through marks. Again, reading the scenario carefully was the key here – the most common mistakes were missing that the bonus was calculated on each WHOLE percentage point above 15% (i.e., 16.7% counts as 1% above), and then either forgetting or missing the need to multiply by 3%. Almost everyone was able to cap the bonus at 10% of the manager's salary where necessary.

Requirement (b) – 12 marks



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The performance of each division is assessed by Head Office using return on investment (ROI) based on net assets. Each of the divisional managers is paid an annual salary of $180,000 plus an annual bonus based on the ROI achieved by their division. Each division is expected to achieve a minimum ROI of 15% for which no bonus is payable, however, for every whole percentage point above this that the divisions achieve, the managers accrue a bonus of 3% of the annual salary. The maximum bonus which can be earned is 10% of the annual salary.

During the year ending 31 August 20X9, Head Office decided to invest $2m in a new computer system in Division HG. This was against the advice of the divisional manager and caused a lot of disruption to customer orders. Due to these issues, Head Office decided that a similar planned installation would not take place at Division PC.

The following data relates to the year ending 31 August 20X9:

	Division HG	Division PC
	$'000	$'000
Sales	12,655	22,834
Direct costs	5,796	11,134
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Cash	650	-
Trade receivables	1,040	3,753
Trade payables	800	2,230
Overdraft	-	1,650
Number of orders completed within 7 days of the order being placed		
YE 31 August 20X9	80%	95%

(b) Using your answer to part (a) and the data provided, assess the performance of each of the divisions, including the management of working capital.

Note: There are four marks available for calculations and eight marks for discussion.

(12 marks)

(b) Using your answer to part (a) and the data provided, assess the performance of each of the divisions, including the management of working capital.

Note: There are four marks available for calculations and eight marks for discussion.

Part (b) required an assessment of each division's performance using the answers to (a), AND a discussion of working capital management for 12 marks. This part proved more challenging. Very few extra calculations were attempted (despite being told that there were 4 marks available for these) and only a minority of candidates attempted to discuss working capital management. While it was possible to pick up some marks through discussion of ROI, and the problems faced by Division HG due to the new computer system, omitting the discussion on working capital made it hard to score well on either the calculation or discussion aspects of this question.

As with any performance assessment, linking the calculations to the discussion is the best way to score well. The suggested solution, while longer than required from a candidate in an exam, is an excellent demonstration of how to score well on these questions by adding depth to the analysis. Rather than just saying "Division PC's ROI is higher than Division HG's, therefore it performed better," it is important to look at why this might be the case. Here, the information in the scenario about the large investment made against Division HG's wishes could have been used, and this could then be linked to the information given about customer complaints. Linking factors like this will score much better than separate comments on each measure.

Comments such as "Division PC's ROI was higher than Division HG's because they have made better use of their assets" or "Division HG's customer complaints have increased by much more than Division PC's which is poor," will not score well compared to analysis which shows an understanding of the cause-and-effect relationships.

Regarding working capital, it is unclear why so many candidates failed to address this part of the requirement, maybe this was due to not reading the whole requirement. Calculations such as receivables collection period should be very familiar. Again, the scenario will help both in terms of what to calculate and the discussion. It states that “Both of them make all their sales and purchases on credit, having negotiated 30-day credit terms with both customers and suppliers.”

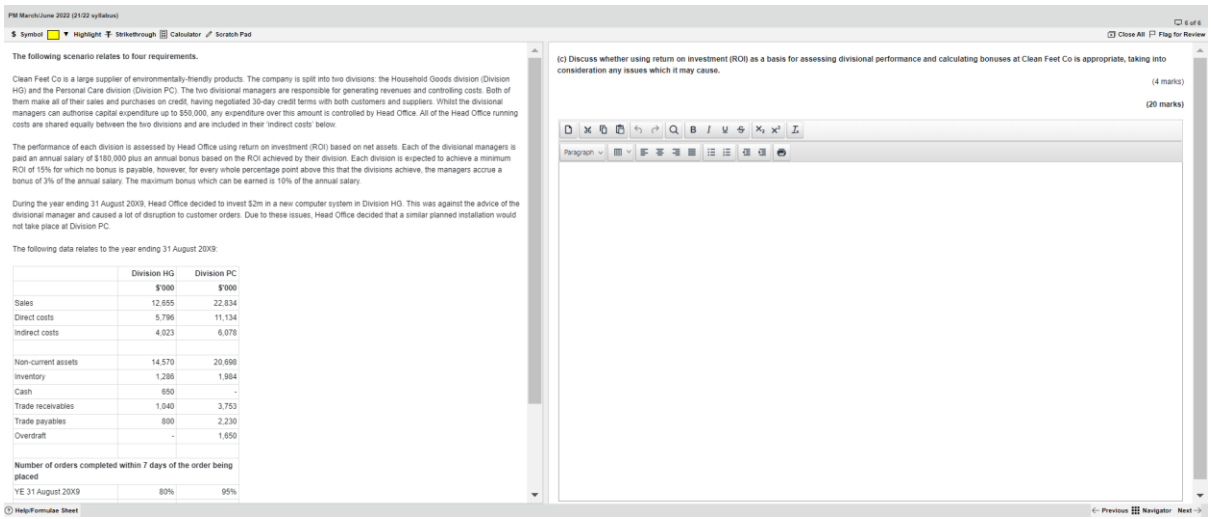
For any performance assessment question, if you are given a target in the scenario, it is essential to compare performance to that target. In this case, 2-3 marks can be obtained relatively easily – 0.5 mark each for the calculation of receivables collection period and payables payment period, then further marks for discussion.

It is very clear to see that Division HG is managing its payables and receivables much better than Division PC when compared to these targets, although both are late in paying their suppliers.

Some candidates who did calculate the receivables collection period and the payables payable period were able to make the point that Division HG was managing its payables and receivables better than Division PC but did not go further and refer to the agreed terms. While some credit could be given in this case, answers which used the 30-day agreed terms to give evidence of good or bad performance scored higher, giving greater depth to their arguments.

There are many examples of this type of question in the Past exam libary, and it is essential to practice using the scenario to back up the story that the numbers tell. Tonford School from September/December 2020 or Flag Co & Budget Co from September/December 2021 are good examples to look at.

Requirement (c) – 4 marks



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(c) Discuss whether using return on investment (ROI) as a basis for assessing divisional performance and calculating bonuses at Clean Feet Co is appropriate, taking into consideration any issues which it may cause.

(4 marks)

(20 marks)

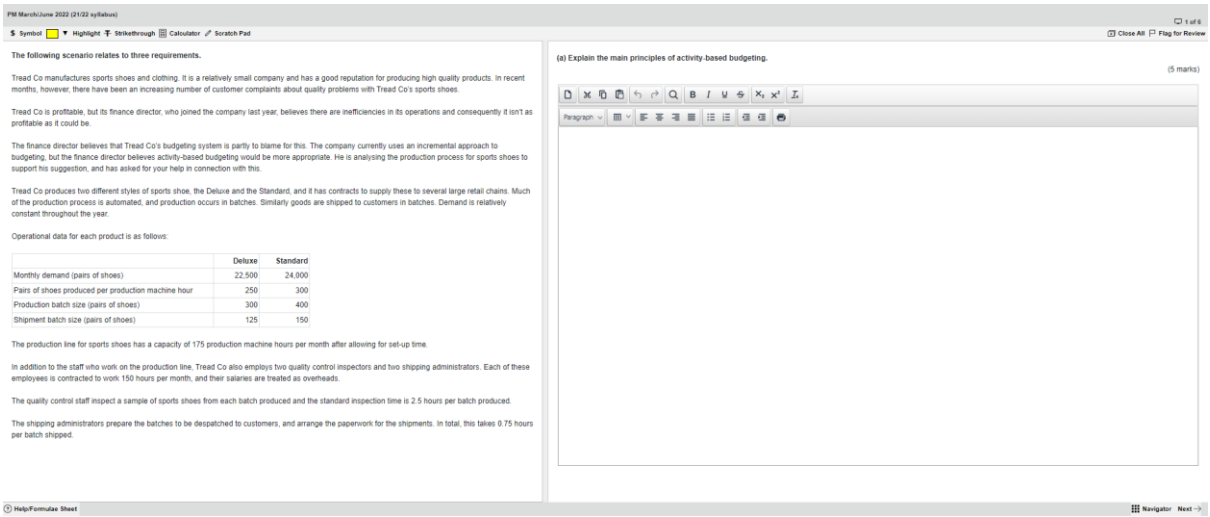
(c) Discuss whether using return on investment (ROI) as a basis for assessing divisional performance and calculating bonuses at Clean Feet Co is appropriate, taking into consideration any issues which it may cause

Part (c) was a 4-mark discussion of whether Clean Feet's method for assessing divisional performance is appropriate, and any issues which might occur. Answers to this tended to be too brief. Candidates showed that they had learnt the advantages and disadvantages of using ROI, but many were unable to use this knowledge with respect to the scenario. One of the main disadvantages of ROI which is taught is that managers will be unwilling to replace old assets, as this will increase their capital employed and thus reduce their ROI. The vast majority of candidates knew this and based their answer around it – however it could not be awarded marks because it is not relevant here – Clean Feet's managers cannot authorise capital expenditure above $50,000, so it is not their decision whether assets are replaced or not.

As mentioned earlier this shows the importance of reading the scenario – the clues are there. As well as being given this authorisation limit, the scenario also tells us that the new system was installed in Division HG despite the manager advising against it – further highlighting the lack of control. Unfortunately, this controllability aspect was missed by many, meaning high scores in this part were uncommon. Candidates who did pick this up were able to explain that this makes ROI unsuitable as a performance assessment method and score well.

It is also important in questions like this to answer both parts of the requirement – discussion of suitability as well as issues. This was well done, many candidates picking up marks for suggesting that managers might focus on short-term profit gains over long-term improvements.

Question 2 – Tread Co



PM March/June 2022 (21/22 syllabus)

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The following scenario relates to three requirements.

Tread Co manufactures sports shoes and clothing. It is a relatively small company and has a good reputation for producing high quality products. In recent months, however, there have been an increasing number of customer complaints about quality problems with Tread Co's sports shoes.

Tread Co is profitable, but its finance director, who joined the company last year, believes there are inefficiencies in its operations and consequently it isn't as profitable as it could be.

The finance director believes that Tread Co's budgeting system is partly to blame for this. The company currently uses an incremental approach to budgeting, but the finance director believes activity-based budgeting would be more appropriate. He is analysing the production process for sports shoes to support his suggestion, and has asked for your help in connection with this.

Tread Co produces two different styles of sports shoe, the Deluxe and the Standard, and it has contracts to supply these to several large retail chains. Much of the production process is automated, and production occurs in batches. Similarly goods are shipped to customers in batches. Demand is relatively constant throughout the year.

Operational data for each product is as follows:

	Deluxe	Standard
Monthly demand (pairs of shoes)	22,500	24,000
Pairs of shoes produced per production machine hour	250	300
Production batch size (pairs of shoes)	300	400
Shipment batch size (pairs of shoes)	125	150

The production line for sports shoes has a capacity of 175 production machine hours per month after allowing for set-up time.

In addition to the staff who work on the production line, Tread Co also employs two quality control inspectors and two shipping administrators. Each of these employees is contracted to work 150 hours per month, and their salaries are treated as overheads.

The quality control staff inspect a sample of sports shoes from each batch produced and the standard inspection time is 2.5 hours per batch produced.

The shipping administrators prepare the batches to be despatched to customers, and arrange the paperwork for the shipments. In total, this takes 0.75 hours per batch shipped.

(a) Explain the main principles of activity-based budgeting.

(5 marks)

Paragraph

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This question contains requirements from both Decision-making techniques (syllabus area C) and Budgeting and control (syllabus area D). The question focused on two key areas, firstly the use of activity-based budgeting as a budgetary system and secondly an analysis of the resource requirements and availability.

Tread Co is a sports shoes and clothing manufacturer producing high-quality products, with a good reputation which is a key piece of information provided in the scenario. Candidates should have kept this in mind when considering the implications in part c). Tread Co is considered to not be as profitable as it should be,

and blame is being placed on their traditional approach to budget setting (incremental). The question provides us with production plans for Tread Co's two sport shoe products and details of the constraints it has on resources.

Looking at each part in detail:

Requirement (a) – 5 marks

(a) Explain the main principles of activity-based budgeting.

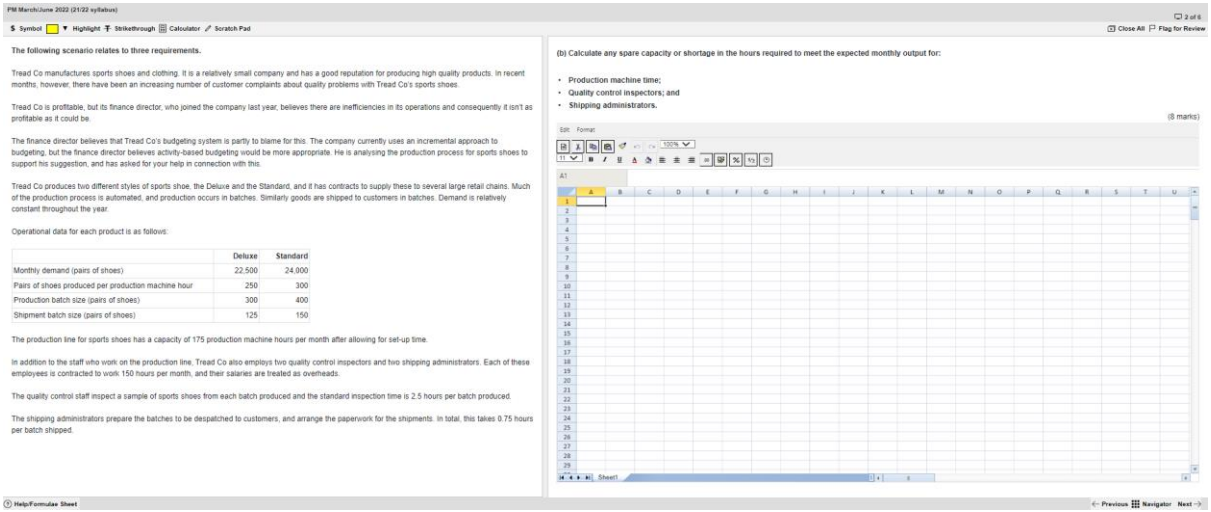
This 5-mark question targeted knowledge of activity-based budgeting (ABB) and the key principles in its adoption as a budgetary approach. The key point to note for this question is it is not a question requiring a display of knowledge of the approach to activity-based costing (ABC). A disappointing number of candidates focused on explaining the step-by-step approach to ABC which unfortunately scored few, if any, marks.

Good knowledge of the main activity-based budgeting principles needed to be demonstrated but no specific application to the scenario was required. Candidates could, however, include relevant points from the scenario to support and demonstrate their points. An ABB approach will focus on the activities the company is required to perform to meet its expected production and sales volumes. This will enable a budget to be prepared to ensure the available resources are sufficient to meet the demand for these activities. Activities will drive the costs, and management of the activities will ultimately manage the associated costs, therefore budgeting the activities.

It will enable the company to establish those activities which are adding value and those which do not, which supports efficiency improvement decisions. Many candidates were able to explain that a key principle of ABB is the need to budget for these activities and within this, the identification of the cost drivers is needed for the budget preparation.

It is important to keep to the question requirements and not be pulled off track explaining principles relating to a technique which hasn't been asked for. Although ABC will be used as part of the ABB approach the question did not ask for ABC to be explained.

Requirement (b) – 8 marks



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(b) Calculate any spare capacity or shortage in the hours required to meet the expected monthly output for:

- Production machine time;
- Quality control inspectors; and
- Shipping administrators.

(8 marks)

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- **Production machine time;**
- **Quality control inspectors; and**
- **Shipping administrators.**

This 8-mark question required detailed calculation of the resource requirements and a comparison to the availability of those resources to establish whether there were surplus resources (spare capacity) or if there was a constraint and therefore a shortage.

Candidates were provided with the information to enable a calculation to be made of the available quality control staff time and the shipping administrators' time and the total machine hours available were provided. Although there was good performance in this part, a number of responses did not factor in the TWO available staff members for both tasks and accounted for just one. For both the quality control inspectors and the shipping administrators, the available time each month was 2 x 150 hours = 300 hours.

For each of the two products the sales volume for the month, which was the equivalent production volume, was given as well as the production details.

	A	B	C	D	E	F
1		**Deluxe**	**Standard**	**Total required**	**Total available**	**Spare capacity /(shortage)**
2	**Production machine time:**					
3	Monthly demand	22,500	24,000			
4	Pairs of shoes produced per machine hour	250	300			
5	**Production machine hours required**	**90**	**80**	**170**	**175**	**5**
6						
7	**Quality control inspectors:**					
8	Production batch sizes	300	400			=B3/B8
9	Number of batches produced	75	60			
10	Quality control time per batch (hours)	2.5	2.5			
11	**Quality control time per month (hours)**	**187.5**	**150**	**337.5**	**300**	**-37.5**
12						
13	**Shipping administrators:**					
14	Shipment batch sizes	125	150			=B3/B14
15	Number of batches shipped	180	160			
16	Shipping admin time per batch (hours)	0.75	0.75			
17	**Shipping admin time per month (hours)**	**135**	**120**	**255**	**300**	**45**

Make use of the spreadsheet when laying out your answer and show all workings with the cells, referring to other cells where possible as this helps to avoid potential mistyping of numbers. The above shows a good layout for this answer, where headings are used, and it is clear for the marker to see exactly how the calculations have been done.

Machine hours

Calculations were required to establish the number of machine hours required from the production volume and the number of pairs of shoes which could be produced in a machine hour. This required fairly straightforward calculations and many candidates correctly identified the total machine hours required and compared this to the total hours available to identify that there was a small amount of spare capacity.

Quality control hours

The calculations for the quality control hours and shipping administrators' hours were more complicated and more candidates found these challenging. The first step was to identify the number of production batches (production volume/production batch size) and then multiply this by the 2.5 hours required per batch to get the total quality control hours required. To complete this calculation a comparison was needed

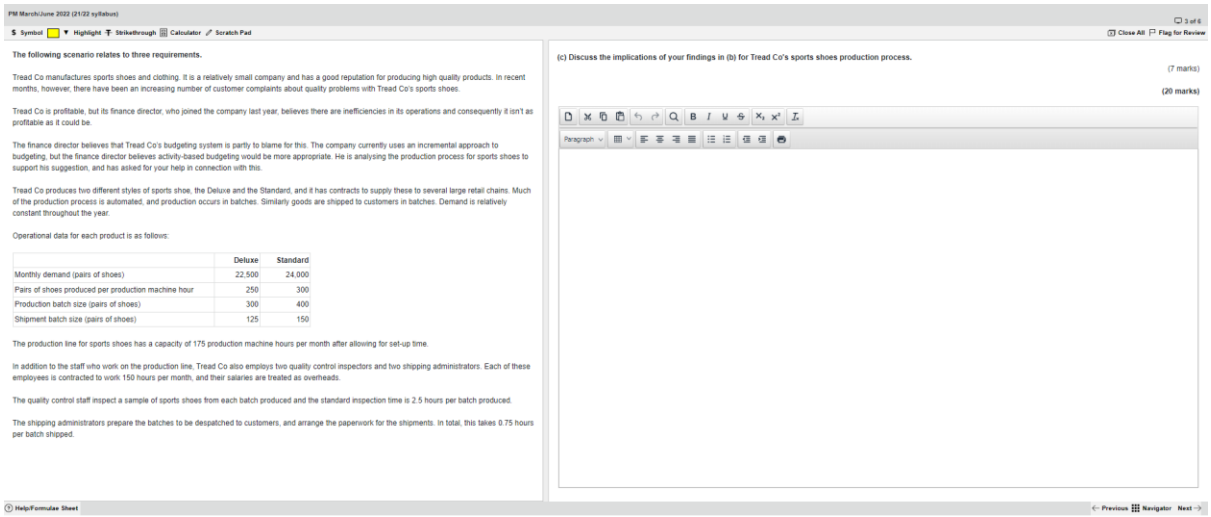
against the available hours to show the resulting shortage. A number of candidates missed out on some easy marks by not completing this final step.

Shipping administration hours

The same approach was needed for the shipping hours, although more candidates struggled with the application of the 0.75 hours per batch required. It was important to recognise the different batch sizes for shipping as compared to the production batch sizes. Marks were missed through failing to identify this difference and not preparing the new calculations of the number of batches required for shipping. The calculation of the spare capacity in this resource needed to be identified again by comparing the required hours with the available hours of the two shipping administrators.

Overall performance for this question part was good with many candidates scoring full marks and many others gaining the majority of the marks. When it comes to these calculations it is important to check back to the requirements and make sure the final answer prepared addresses what was asked. The requirement asked for a calculation of the spare capacity or shortage for each one so these final figures for each of the three resources needed to be given as the final answer.

Requirement (c) – 7 marks



(c) Discuss the implications of your findings in (b) for Tread Co's sports shoes production process.

Part (c) required a discussion of the implications of the findings from part (b) for 7 marks. The important thing to note is that value needed to be added to the calculations performed in part (b) and simply stating the spare capacity or shortage was not going to gain any marks.

It was also important that relevant comments were made and not simply irrelevant assumptions without justification.

Where incorrect calculations had been performed in (b), full marks could still be obtained in part (c) as long as all discussions and suggestions were consistent with the calculations in (b).

Machine hours

Where calculations showed only a small number of spare hours, to suggest the production of a new product was not appropriate and suggestions to increase production and sell more required more explanation. Those candidates who suggested this but went on to explain that the monthly demand was limited, and further marketing would be needed in order to increase the demand to make this worthwhile would have gained marks for these comments. To simply suggest producing more with the available hours to sell more would not. Few candidates were able to explain that this buffer in capacity was very low but provided benefit if there was machine maintenance or downtime required.

Quality control hours

A significant shortage in hours was calculated here and it was important to reflect on the information provided in the question which tells us that Tread Co has a high-quality product and there have been increasing complaints. Many candidates suggested the link between the shortage in quality control and the rise in complaints and were also able to recognise the need to increase the quality control capacity and not simply reduce the quality control activity. It was also important to note that there was not the need for another full-time member of staff in this department to meet the current volume of demand, as the shortage of 37.5 hours is significantly less than the full-time hours of 150 per month. This part of the question highlights the need to review the information provided in the scenario and use this in forming relevant suggestions and discussion.

Shipping administration hours

A significant number of spare hours will have been calculated here and many candidates recognised there was a cost to the business for which they did not derive any benefit. Many suggested utilising these staff members, through additional training, to support the shortage identified in quality control which scored marks. For suggestions to reduce the number of staff in the shipping administration more detail was required to explain it was not a full-time level of hours that it needed to be reduced by. Also, to recognise that there are contractual obligations with staff which would need negotiation if they were to reduce to part-time.

Responses to this part were mixed, with the easier, basic points being identified but fewer candidates being able to discuss the more wide-ranging implications in detail.

Hopefully reading this guide in conjunction with the model answers will show how to score well on these types of questions.