# Examiner's report
## PM Performance Management
## March 2019

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

**General comments**

The Performance Management (PM) exam is offered in both computer-based (CBE) and paper formats. The structure is the same in both formats but our 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 share their observations from the marking process to highlight strengths and weaknesses in candidates' performance, and to offer constructive advice for future candidates.

- Section A objective test questions - we focus on two specific questions that caused difficulty in this sitting of the exam
- Section B objective test case questions - here we look at the key challenge areas for this section in the exam
- Section C constructed response questions - here we provide commentary around some of the main themes that have affected candidates' performance in this section of the exam, identifying common knowledge gaps and offering guidance on where exam technique could be improved, including in the use of the CBE functionality in answering these questions.

<u>**Section A**</u>

**Sample questions for discussion**

Here we take a look at **TWO Section A** questions which proved to be particularly difficult for candidates.

**Example 1**

A company makes two products with the following characteristics:

|  | **Product X** | **Product Y** |
|---|---|---|
| Contribution to sales ratio | 0.3 | 0.5 |
| Selling price per unit | $3.00 | $4.80 |
| Maximum demand | 8,000 units | 3,000 units |

Fixed costs are $9,000.

**What is the minimum revenue required for production to break even?**

**A**  $20,400
**B**  $25,800

**C**     $29,400
**D**     $24,000

*What does this test?*

✓ Cost-volume-profit analysis

*What is the correct answer?*

✓ The correct answer is **A**

- To determine the minimum revenue required to break even i.e. the break-even revenue, the break-even point for each product needs to be calculated. To do that the contribution per unit for each product needs to be established.

|  | **Product X** | **Product Y** |
|---|---|---|
| Contribution per unit (C/S ratio x selling price) | 0.3 x $3.00 = $0.90 | 0.5 x $4.80 = $2.40 |
| Break-even point (Fixed costs /contribution per unit) | $9,000/$0.90 = 10,000 units | $9,000/$2.40 = 3,750 units |
|  |  |  |
| Maximum demand | 8,000 units | 3,000 units |

From the table above, either 10,000 units of product X or 3,750 units of product Y need to be produced to break-even. However, as there is a maximum demand for both products, the break-even sales units cannot be achieved on either product. If the break-even point cannot be achieved with only one of the products, then the combination of units of products X and Y to be sold in order to break even needs to be determined.

To do this, the product with the highest contribution per unit would be produced first, up to its maximum demand, to cover the fixed costs as quickly as possible. Product Y contributes $2.40 per unit, so it will be produced first, up to its maximum demand of 3,000 units, giving a total contribution of (3,000 units x $2.40) $7,200.
Therefore sales of product Y would cover $7,200 of the fixed costs but there will be $1,800 of fixed costs remaining, which need to be covered by sales of product X.

Production of product X will therefore be (remaining fixed costs/contribution per unit of product X - $1,800/$0.90) = 2,000 units.

As the question asks for the minimum revenue (break-even revenue), the last step would be to calculate the **sales revenue** from the production plan calculated above.

Product X sales revenue = 2,000 units x $3.00 = $6,000
Product Y sales revenue = 3,000 units x $ 4.80 = $14,400

The minimum sales revenue required to break even would therefore be **$ 20,400.**

- Selecting option **B** would have been arrived at if product X was produced first, followed by product Y. If candidates took this approach then they could not have the ranked the products on the basis of contribution per unit.

  Product X's contribution from sales, up to its maximum demand of 8,000 units, would be (8,000 units x $0.90) $7,200, whereas the contribution required from product Y would be $1,800 to cover the remaining fixed costs. 750 units ($1,800/$2.40) of product Y would therefore have to be made.

  Based on this production plan, the minimum sales revenue would be = product X (8,000 units x $3.00) + product Y (750 units x $4.80) = $25,800.

- Selecting option **C** would have been arrived at if candidates calculated the maximum sales revenue and deducted the fixed costs from it as shown below:

  Maximum sales revenue = (8,000 units x $3.00) + (3,000 units x $4.80) = $38,400
  Less fixed cost                                                      ($9,000)
                                                                        **$29,400**

- Selecting option **D** meant that candidates applied the weighted average method which was not required.

  Weighted average contribution per unit
  = ($0.90 x 8,000 units) + ($2.40 x 3,000 units)/11,000 units = $1.30909 per unit

  The break-even point was then calculated using the weighted average contribution per unit
  = $9,000/$1.30909 = 6,875 units

  To calculate the sales revenue, the weighted average selling price was applied to break-even point:
  = (($3.00 x 8,000 units) + ($4.80 x 3,000 units)/11,000 units) x 6,875 units = $24,000

## Example 2

A company's board of directors were recently embarrassed when a very unhappy junior human resources employee emailed details of their salaries to the entire company.

An investigation revealed that the human resources director had lent his username and password to the junior employee so that routine maintenance of the human resources database could be conducted whilst the director was on vacation. During the director's vacation, the junior employee had used the director's username and password to access the board's salary records.

**Which of the following controls could have helped to prevent this breach of confidential information?**

A       Monitoring the database system logs on a daily basis to see what information is being accessed

**B**       Building levels of access into the database so that only senior staff have access to board records

**C**       Keeping all the human resource records for salaries on a separate server

**D**       Having a policy of regularly updating the passwords required to access the system

*What does this test?*

✓ The procedures necessary to ensure the security of highly confidential information.

*What is the correct answer?*

✓ The correct answer is **A**

- Monitoring the usage and access logs on a regular basis would have revealed that the human resource director's account was being accessed whilst he was on vacation and that confidential information was being looked at and copied. This would have enabled the company to investigate immediately and the individual could have been identified sooner, which could have prevented the sensitive information from being divulged to everyone in the company.

- Selecting options **B, C and D** would have been ineffective in this instance. Even if certain information was restricted to only director level, or that the information the director had access to, was on a separate server, or that the director was prompted regularly to change passwords; none of these controls would have helped as the director had shared his confidential account details with the junior employee.

## Section B

Section B tests students' knowledge on a number of topics in more detail than in section A, with three cases containing five two-mark objective test questions. The range of topics covered in the March 2019 examination was:

- Target costing
- Cost-volume-profit analysis
- Variances
- Throughput accounting
- Dealing with risk and uncertainty in decision-making
- Rolling budgets

A few key points that came out of section B were:

- Read the case scenario and requirements very carefully. This goes for the whole exam, but any objective test question is 'all or nothing' – if you misread the requirement or miss a vital piece of information from the scenario and get the answer incorrect you score zero for that question. This applies also to instructions on how to round your answers.
- Cover the whole syllabus. The list above should highlight this – PM has a large syllabus which can be daunting, but it is essential to have a broad knowledge. If, for example, a

section B OT case covering variances comes up and you have not covered this in your studies, the 10 marks available are left to chance.

- Be able to apply your knowledge of theories/techniques to the scenario given, as in the case questions these areas will often be examined in the context of the case. It is important that you are able to apply the logic of a concept or theory to a problem and so you need to understand the method and why you are doing the calculations and not just focus on how to do the calculations.

## Section C

Candidates were presented with questions drawn mainly from the areas of:

- Performance measurement in a private sector context and public sector context
- Divisional performance and transfer pricing
- Decision-making techniques

These will be discussed in turn.  Although the specifics of individual questions will not be discussed, common areas candidates either performed well on or struggled with will be highlighted. Advice will be provided to improve exam performance.

**Performance measurement**

This is a key topic in the Performance Management (PM) syllabus and is regularly examined. Unfortunately, as has often been the case, it is not an area that candidates score highly on. The published sample exam from the September/December 2018, the detailed question commentary for this sample exam and the PM examiner's report for December 2018 contain several pointers on how to score well in this area and are available on ACCA's website.  However, it is worth summarising some key steps in order to score well for such questions.

(1) The use of headings

Performance measurement questions usually carry 15-20 marks, so by using headings candidates would be able break up their answer, making it more likely to pick up on 'easy' marks as well as covering all of the information given in the scenario. This is even more important when the headings are provided in the requirement, as most (if not all) of the marks will be allocated for points under these headings.

(2) The calculations must be performed first followed by the discussion

Once the candidates have read requirement and scenario carefully, they should be able to identify what the important measures are (often both financial and non-financial) and these should be worked out immediately. The reason for doing this first is that the numbers will start to tell the story on the performance.  The calculations can thus be linked to each other and other information in the scenario.

(3) Provide links between the measures

Following on from the second point, measures can be linked together; they can be used to explain a business' performance. Again, these measures might be both financial and non-financial. For example, if an early calculation has identified that the net profit margin has fallen from 8% to 6%' this may be because of an increase in costs. If further analysis then shows that staff training costs have increased by 30%, the two can be linked. The scenario could also state that staff were sent on an intensive customer service course, explaining the increase in training costs and the expectation that this would lead to an improvement in quality. Finally, information from the scenario may show that customer complaints have fallen by 45% so again showing a clear link can be created between the measures.

(4) Explain the rationale for the changes

Headings have been established, calculations have been done and links have been made between the numbers and the information in the scenario. Now, all the information will need to come together. So to use the simple example above, under the heading 'Net Profit Margin', the following can be written:

'The net profit margin has fallen from 8% to 6%, which could be due to the increase in staff training costs of 30%. The training cost increase is due to the intensive customer service course the staff were sent on, however this cost seemed worthwhile, as it has led to a reduction in the number of customer complaints by 45%.'

(5) Comment on performance

For performance measurement questions, comments are required on how the business has performed. Whilst saying 'this is good or bad' may seem to be an easy conclusion, it is unlikely to be given any credit. Candidates are advised to use the information in the scenario such as comparisons to targets, prior periods' measures and other businesses/divisions to give the discussion more meaning. The following can be added to the 'net profit margin' comment from above: 'Although profitability has fallen, it was due to a one-off staff training cost but this should improve next year, and the reduction in customer complaints may lead to more repeat business thus increasing future profits.'

Bringing all of the above together to show the cause and effect relationships between the different measures and the information given in the scenario will allow more marks to be scored on these questions.

In the March 2019 exam, it was pleasing to see that the vast majority of candidates used the headings that were given in the question, and many were able to perform suitable calculations. It was in the last 3 steps mentioned above that many missed the points, which meant that it was hard to award top marks. Bland comments such as 'Revenue has increased by 5%, which is good' were all too regular, with many candidates simply copying out sections of the scenario without any discussion of the effect of what they are writing.

**Divisional performance measurement**

This topic area could easily be included under the previous heading, as just a subset of performance measurement questions, and in many ways it is – when asked to discuss divisional performance, the skills discussed above will serve the candidate well. However, there are a couple of areas specific to divisional performance measurement which were in the March 2019 exam, and will be discussed below.

**Transfer pricing**

Regrettably, this is an area candidates continue to struggle with. The published March/June 2018 examiner's report discussed a recent transfer pricing question (The Portable Garage Co), and is well worth a read, however it is clearly a topic that candidates do not understand in the same level of depth as other areas of the syllabus.

Transfer pricing questions, including 'The Portable Garage Co' mentioned above, often require candidates to prepare a statement of profit or loss for each division and the company as a whole under the current transfer pricing arrangement. This is then often followed by a discussion of the transfer pricing policy and its impact on the divisions and the company. In addition, requirements may focus on asking candidates to    restate the profits following a change, for example, the availability of an external supplier or a proposal to change the transfer pricing policy.

Candidates usually score well on the profit statement where the current transfer price has been used as this is fairly straightforward, even with limited transfer pricing knowledge. The advice for the tackling other requirements should be revisited as per the published March/June 2018 exam, which includes a detailed commentary where in depth advice is given.

Where candidates struggled in the March 2019 exam, and in previous sittings, is how to discuss the issues the divisions face with any change in policy or external supplier. They often make generic comments about 'goal congruence', without explaining what that means in the context of the scenario. Whilst each question is different, there are generally **three** areas to look at when discussing transfer pricing questions, as was required in the March 2019 exam.

  (1) What is best for the Buying division?

This is relatively straightforward. The buying division needs to buy something – components, part-finished goods, etc. They obviously wish to spend as little as possible in order to keep their costs down, so what we need to look for here is **the maximum they would be willing to pay for the goods**. Usually, this will be equal to whatever the external supplier is charging. So, if the buying division can buy the components for $20 on the external market, the maximum they would pay for an internal transfer would also be $20.

If there was no external market, then they would just want to pay as little as they could.

  (2) What is best for the Selling division?

The selling division will want to sell for as much as possible, in order to increase their profits. The discussion here should focus on **the minimum they would accept for the transfer**. The decision

would be slightly more complicated here, as it would depend on their production capacity, but in general, they do not want to be worse off by accepting the internal transfer.

**Spare capacity**
If the selling division has spare capacity to make the internal transfers, the absolute minimum they would be willing to accept would need to cover all relevant/incremental costs incurred in their production. For example, the minimum price would need to be equal to the marginal cost of production. If making one more unit cost $10, then the minimum the selling division would accept is $10 for the transfer.

Note: it is likely that they would prefer more, but this gives the lower limit of the transfer price.

**No spare capacity**
If the buying division wanted 1,000 units of a component and the variable cost per unit was $10, but the extra production of the 1,000 units would cause a step increase in the fixed costs incurred by the selling division of $2,000, then, the least the selling division would be willing to accept is the $10,000 for the variable costs plus the $2,000 for the incremental fixed costs. The transfer price will therefore be $12,000/1,000 units = $12 per unit.

If the selling division is operating at full capacity and this means that to complete an internal sale they would have to give up on some external sales, the least they would accept from the internal sale is whatever they are losing out from the external sale. Remember this is because the selling division will not want to be any worse off.

In most simple cases, this will be the external selling price. So if the selling division can sell externally for $20 per unit, the least they would accept for an internal sale is $20 per unit. However, things can get more complicated if the costs of an internal sale differ from those of an external sale. However, by sticking to the rule that they do not want to be any worse off will help the decision-making. For example, if there are selling costs of $2 per unit which only apply to external sales, then an internal transfer price of $18 per unit would be just as good as an external selling price of $20 per unit. Therefore, the minimum transfer price would be $18 rather than $20.

(3) What is best for the company as a whole?

Points 1 and 2 should give a candidate enough points to cover in their discussion, but the effect on the company should also be considered. The company does not see the inter-divisional profits, so in most cases the transfer price is irrelevant to them. The company will instead see changes in external costs and revenues. So if the selling division has variable cost per unit of $10, every unit that is made and sold costs the company $10 regardless of the transfer price. If the transfer price is set at $20 per unit, but an external supplier offers the buying division the component at a price of $15 per unit, then the buying division would accept the lower price. They would save themselves $5 per unit and their profit would increase. Unfortunately, the company would now be paying $15 per unit to buy these goods in, instead of only incurring $10 for the variable cost per unit if these goods were made internally.

It can be seen that even in a relatively simple example there is a lot to discuss. Candidates should consider the impacts on each division and on the company as a whole. Taking an approach like this would make these questions a lot less confusing.

**ROI vs RI**

This is another area specific to divisional performance measurement questions. On the whole, these questions are well-answered, and the March 2019 exam was no exception. Candidates are comfortable with the calculations of both measures and can discuss them well.

A good example which candidates can use in their revision is the sample published September/December 2017 exam.

The suggested solution explains the calculations well. However, one aspect of the requirement which is worth focussing on is (b) (ii) 'Explain the advantages and disadvantages of using residual income (RI) to measure divisional performance'. The March 2019 exam had a similar requirement which needs addressing.

It was clear from the marking process that most candidates were well prepared in this area, and have learnt the advantages and disadvantages of using residual income. However, many failed to score well on the question because they did not address the requirement fully as they failed to **explain** the advantages and disadvantages. For instance, stating that 'RI leads to goal congruent decisions' does not explain how RI is doing this better than the return on investment measure. To gain full credit, candidates should have instead stated something like 'RI uses the cost of capital of the whole company, so decisions made using RI as regards to investment will be in line with the company's objectives'. Candidates must address the requirement fully to gain full credit for their knowledge in all questions.

**Decision-making techniques**

Decision-making techniques can be tested in many different ways as detailed in the PM syllabus. The two areas which were examined in the March 2019 exam were relevant cost analysis and limiting factors.

**Relevant cost analysis**

The key issue with all relevant costing questions is 'what is the decision?' Once that has been established, then the relevant cash flows can be identified by looking at the difference between taking the decision or not.

Making a decision under relevant costing principles is very different to using accounting principles, and this is perhaps why so many trainee accountants struggle in this area. Unfortunately, if candidates applied accounting principles to a relevant cost analysis question, it would be hard for them to score high marks. Generally, on such questions, scores tend to be either very high or very low. It is strongly recommended that candidates practise questions in this area. There are number sample objective test questions on relevant cost analysis available on ACCA's website and also a constructed response question (HL Co) in the PM specimen exam. Once the basics have been mastered, it will be much easier to approach the Section C questions.

**Limiting factors**

Like with relevant costing, results in this area were divided. Many candidates scored very high marks but unfortunately, there were a significant number of candidates who appeared completely unprepared for a Section C question on this topic. The most common issue was candidates simply not knowing the method. This will be discussed below.

However, it is worth mentioning that one common mistake was many candidates used throughput per unit instead of contribution per limiting factor for their decision. The two methods are very similar, and some credit was awarded. Candidates should only use throughput accounting if they are told to do so. The requirement in the March 2019 exam had specifically asked candidates to calculate the maximum contribution and there was no mention of throughput accounting. Candidates must read the requirement carefully to avoid such an error in the future.

In summary, planning with limiting factors questions would involve establishing an optimum production plan when one or more resources (materials, labour, etc.) are in short supply. There are two broad areas which can be tested:

### 1) One single limiting factor

One resource will be in short supply and candidates must decide how much of each product they should produce to maximise profit. The key issue here is to establish which of the products would make the best use of the limiting factor. So, the **contribution per unit of limiting factor must be calculated**. It must be noted that profit per unit of the limiting factor would be meaningless as fixed costs will not change in the short term when this decision is being made, so only contribution is relevant for the decision. By far the most common mistake on these questions is to make products in order of their contribution per unit, which is wrong.

Consider the example below:

A company only has 5kg of material. Product A makes a contribution of $50 per unit but requires 5kg of material to make. Product B makes a contribution of $15 per unit but only requires 1kg of material to make. Which of the two products would be made to maximise contribution? Obviously, it is more worthwhile to make 5 units of product B and earn $75 contribution compared to making 1 unit of product A and earn $50. This is because product A makes a contribution of $10 per kg ($50/5kg) and product B makes a contribution of $15 per kg, so product B is more profitable and would be ranked first. For any single limiting factor question, these steps should be followed:

(i) **Identify the limiting factor**. This would be based on the information given in the question and it may have to be calculated by comparing the resources required to satisfy the maximum demand versus the resource available. If more resources are needed than is available then there is a limiting factor.

(ii) **Calculate contribution per unit for each product**. It must be remembered that fixed costs will not change in the short-term so ignore them until the final total profit is calculated.

(iii) **Calculate contribution per unit of limiting factor**. This is a very important step to help decide which product will contribute the most to profit from the available scarce resource.

(iv) **Rank the products using the contribution per limiting factor.**

(v)    **Calculate the optimum product mix** in order of their ranking, until all the available resource is fully used.

If these steps are followed, such questions would be relatively straightforward. The only complication which is likely to be added is a 'minimum order'. This is often a special order from a key customer, which must be met. If such is the case, in step (v), the special order would be completed first for all the products, followed by the allocation of remaining resources using the ranking in step (iv). This was an area which candidates missed in the March 2019 exam. Many missed the special order altogether, which meant that their calculations showed that there was no limiting factor. Obviously, that meant the rest of the steps were very hard to complete. A key piece of advice would be, if candidates find from their initial calculation in step (i) that there was no limiting factor, they should read the question again as it is likely they have missed something.

There are a number of examples on single limiting factors in the sample objective test questions on ACCA's website. It is well worth practising those and once the basics have been mastered, the steps will not change and marks can be picked up quickly and easily.

## 2) Multiple limiting factors

In this case, there is more than one limiting factor which requires the use of linear programming to solve the problem of how many units need to be produced to maximise profit. Linear programming sounds very technical but there are 3 main steps to contend with:

(i)    **Formulate the problem**. The problem must be written in a mathematical language, showing the variables (products), the constraints (limiting factors) and the objective function (usually contribution).
(ii)   **Draw the graph to solve the problem** (Note: that if you have more than two products you cannot draw the graph but the solution can be found mathematically. It should be noted that candidates will not be required to draw the graphs but they must be able to interpret a graph which can be given to them).
(iii)  **Calculate slack and shadow prices of the resources**

A good question worth practising is CSC Co from the September 2016 exam.

This question starts with a single limiting factor problem, so is a great practice for candidates to follow the steps detailed above to reach the answer. It must be noted that this question also includes a 'special order' as in the March 2019 exam, so the requirement must be read carefully to establish what is needed. Part (c) of the question changes the situation so that more than one resource is limited. In this case, step (i) in the linear programming steps detailed above was done i.e. the problem was formulated. For Step (ii) the graph was given and candidates had to use the graph to solve the problem. Finally, candidates were asked to calculate the slack values.

This is a more technical area of the syllabus, but if candidates practise enough questions they will find that the steps are the same for every question. Performance on this area in the March 2019 exam was better than on the single limiting factor section, with candidates able to formulate the linear programming problem using the information given on the products and resource availability, which was pleasing to see. As this was completely separate from the single limiting factor part of the question, many were able to make up for poor scores by doing well on linear programming.

**Exam technique**

Exam technique is a key requirement in passing this exam. Candidates must ensure that they spend an appropriate amount of time on each section as it is easy to get bogged down on a tricky two-mark question and waste a lot of time. One of the hardest things to do is to move on from something candidates feel they should be able to do, but there is nothing worse than running out of time and seeing a question in Section C that they could have made a good job of but ran out of time.
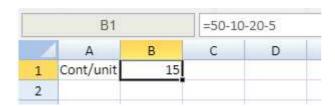
The correct use of the CBE software has been a concern ever since the system was introduced. Whilst, there are still issues, some improvements were noticed with the use of the spreadsheet functionality in the March 2019 exam. Candidates seemed more comfortable entering formulas in the spreadsheets and using them to speed up their responses.

Unfortunately, there are still a significant number of candidates who still do their calculations on their calculators and type them into the spreadsheet. This is both time consuming and prone to error. If an incorrect number is typed into the spreadsheet, it is impossible for the marker to know how it has been arrived at, so no credit will be given. However, if candidates show their calculations as a formula, then the marker can clearly see what it is they are trying to do. Consider the example below for the simple calculation of contribution per unit. Let's say the scenario indicates that the selling price is $50 per unit, material cost is $10 per unit, labour cost is $20 per unit and expenses is $5 per unit. The following could be typed in the spreadsheet as:

| | B1 | | 15 |
|---|---|---|---|
| | A | B | C |
| 1 | Cont/unit | 15 | |
| 2 | | | |

This would be correct, but if there are error when typing, the marker does not know why the figure is wrong and no partial credit can be given.

Using a formula as illustrated below would allow the marker to see where any mistake has been made.

| | B1 | | =50-10-20-5 | |
|---|---|---|---|---|
| | A | B | C | D |
| 1 | Cont/unit | 15 | | |
| 2 | | | | |

The next example gives a better illustration of what would be expected from the marking team.

| B5 | | =B1-SUM(B2:B4) | | |
|---|---|---|---|---|
| | A | B | C | D |
| 1 | Selling price | 50 | | |
| 2 | Material | 10 | | |
| 3 | Labour | 20 | | |
| 4 | Expenses | 5 | | |
| 5 | Cont/unit | 15 | | |
| 6 | | | | |

From the spreadsheet above, it is immediately clear if any typos have been made and the marking team will also understand where the numbers have come from. The extra time spent typing out the numbers is offset by how quickly you can use the software to perform calculations and copy and paste any existing formulae.

It is easier to be more focussed when answering a question using word processing skills and spreadsheets, as the mere fact that what has been written or calculated can be seen more clearly, which helps candidates avoid the temptation to discuss things which are irrelevant. Also, if candidates realise that they have missed a point from an earlier part of a question, it is easier to go back and insert it in the correct place. This would have been particularly useful in the performance measurement question that asked candidates to answer the question using the headings taken from the scenario.

Finally, please remember to use the constructed response workspace available on ACCA's website to practise using the word processing and spreadsheet functionality. Candidates must build time for this in to their revision schedule, as it will save them time in the exam and will ensure workings are accurate in the long run.

**Guidance and learning support resources to help you succeed in the exam**

Preparing for the PM exam may appear daunting but there are many resources available to help candidates. There are technical articles available on the topics in this report and the past exams referred to (and many more) are available on ACCA's website. Candidates should refer to these regularly when studying for their exams. These resources are provided to help candidates develop confidence in their knowledge and understanding of the PM exams.

http://www.accaglobal.com/uk/en/student/exam-support-resources/fundamentals-exams-study-resources/f5.html