
Answers

Section C

31 (a) Competitiveness

	MSC	OSC Average
Percentage of website hits converted into orders		
$(9,506/14,000) \times 100$	67.9%	
$(11,870/18,260) \times 100$		65%

This ratio indicates whether MSC's services are attractive compared to its competitors, which is important if it is going to survive in such a competitive market.

It has performed substantially better than other OSC service centres on average, having converted 67.9% of website hits into jobs, compared to the 65% converted by other service centres. This is a good result.

Financial performance

	MSC	OSC Average
Gross profit margin		
$(\$304,200/\$760,500) \times 100$	40%	
$(\$328,146/\$890,365) \times 100$		36.9%

Gross profit margin is the preferred measure for financial performance from the data presented. It shows the percentage of revenue which exceeds the cost of goods sold.

MSC's gross profit margin is almost 3 percentage points higher than the average, which is a good result. This could be partly because they did relatively well on their new service pack sales (note 4) but it is also likely to be because their ratio of senior mechanics to junior mechanics is lower than the average, and junior mechanics will invariably be paid less than senior ones.

Quality of service

	MSC	OSC Average
Percentage of jobs from repeat customers		
$(1,500/9,506) \times 100$	15.78%	
$(1,660/11,870) \times 100$		13.98%

Quality is a key element of MSC's service to customers and if it is poor, customers will not return.

Again, MSC has outperformed the other service centres on average by 1.8 percentage points. This could be because it has a higher ratio of senior mechanics to junior mechanics than other service centres, so the quality of work is probably better, hence the higher level of repeat customers.

Flexibility

	MSC	OSC Average
Time taken per job		
$(23,100/9,506)$	2.43 hours	
$(24,800/11,870)$		2.09 hours

The time taken to complete each job is important as many customers will use MSC because they can sit and wait for the work to be done, rather than having to hire a rental car for the day, for example.

The comparison shows that MSC takes longer to complete a job than the OSC average. This is not really a good thing and is probably because they have slightly less experienced staff on the whole, but it could also be that they do a more thorough job than other service centres. Given the fact that they have a higher level of return customers than the average and they are graded 9 or 10 by their customers (10 percentage points higher than the average), this is presumably not viewed negatively by customers.

Resource utilisation

	MSC	OSC Average
Sales per mechanic		
$\$760,500/12$	\$63,375	
$\$890,365/13$		\$68,490

The key resource in a service company is its staff and so these indicators measure how this resource is being utilised.

MSC's utilisation of its staff is lower than that of the other service centres by \$5,115 per mechanic. This clearly ties in with the fact that the average time to complete a job is longer at MSC than other service centres. However, given that they use a slightly less experienced staff on average than other centres and the fact that their gross margin is higher than average, this should not be viewed too negatively.

Innovation

	MSC	OSC Average
Percentage revenue generated from new service packs [(\$66,000 + \$58,000 + \$54,000)/\$760,500]	23.4%	
[((\$44,000 + \$42,000)/\$890,365)]		9.66%

MSC wants to offer a wide variety of service packs to its customers and needs to be innovative in packaging services up.

The 23.4% indicates that MSC is indeed innovative in their approach to their customers' needs, offering an innovative mix of services. MSC has really outperformed other service centres on this front, generating a far larger part of its revenue by the introduction of new service packs, which must have attracted customers. This is a really strong performance.

- (b) The standards block sets the target for the performance indicators chosen for each of the dimensions. The targets must meet three criteria – they must be achievable, fair and encourage employees to take ownership. If the targets set do not meet these criteria, then the performance of the organisation could suffer.

The rewards block ensures that employees are motivated to achieve the standards. It also considers the properties of good reward schemes which are that they should be clear, motivating and based on controllable factors.

If standards and rewards are set appropriately, the staff will be engaged and motivated and it is then more likely that the goals, i.e. dimensions, of the organisation will be achieved.

32 (a) (i) Usage variance

	Should use (kg)	Did use (kg)	Difference (kg)	Std cost/kg (\$)	Variance (\$)
Alpha	1,840	2,200	360 A	2.00	720 A
Beta	2,760	2,500	260 F	5.00	1,300 F
Gamma	920	920	–	1.00	–
	<u>5,520</u>	<u>5,620</u>			<u>580 F</u>

(ii) Mix variance

	AQSM (kg)	AQAM (kg)	Difference (kg)	Std cost/kg (\$)	Variance (\$)
Alpha	1,873.33	2,200	326.67 A	2.00	653.34 A
Beta	2,810.00	2,500	310.00 F	5.00	1,550.00 F
Gamma	936.67	920	16.67 F	1.00	16.67 F
	<u>5,620</u>	<u>5,620</u>			<u>913.33 F</u>

(iii) Yield variance

	SQSM (kg)	AQSM (kg)	Difference (kg)	Std cost/kg (\$)	Variance (\$)
Alpha	1,840	1,873.33	33.33 A	2.00	66.66 A
Beta	2,760	2,810.00	50.00 A	5.00	250.00 A
Gamma	920	936.67	16.67 A	1.00	16.67 A
	<u>5,520</u>	<u>5,620</u>			<u>333.33 A</u>

Alternative solution

5,620 kg input should produce 4,683.33 kg of Omega

5,620 kg input did produce 4,600 kg of Omega

Difference = 83.33kg x \$4 per kg (\$400/100 kg) = \$333.32 A

- (b) The raw material price variances included in the report are probably outside the production manager's control, and are more the responsibility of the purchasing manager. Furthermore, the production manager has no participation in setting the standard mix. Holding managers accountable for variances they cannot control is demotivating.

There appears to be no use of planning variances. Prices and quality of the three materials are volatile and using ex ante prices and usage standards can give a distorted view of mix and yield variances. Failing to isolate non-controllable planning variances can be demotivating.

The standard mix for the product has not changed in five years despite changes in the quality and price of ingredients. It can also lead the production manager to attempt control action based on variances which are calculated based on standards which are out of date.

As Kappa Co does not currently give feedback or commentary, a true picture is lacking as to the production manager's performance. There is also no follow up on the variances calculated. As Kappa Co does not appear to place much importance on the variances, the production manager will not be motivated to control costs and could become complacent which could adversely impact Kappa Co overall.

This can be illustrated by looking at the overall usage variance reported which shows a \$580 favourable variance, so the production manager could assume good performance. However, if the usage variance is considered in more detail, through the mix and yield calculations, it can be seen that it was driven by a change in the mix. There is a direct relationship between the materials mix variance and the materials yield variance and by using a mix of materials which was different from standard, it has resulted in a saving of \$913.33; however, it has led to a significantly lower yield than Kappa Co would have got had the standard mix of materials been adhered to. Also changing the mix could impact quality and as a result sales and there is no information about this.

Section C

Maximum marks Marks awarded

31 One Stop Car Co

(a) Calculations	6
Justification of PI	3
Discussion of performance under the dimensions	7
	<u>16</u>
(b) Explanation	4
	<u>20</u>

32 Kappa Co

(a) (i) Alpha usage variance	1
Beta usage variance	1
Gamma usage variance	1
Total usage variance	1
	<u>4</u>
(ii) AQSM figures	1.5
Variance quantities	0.5
Variance in \$	1.5
Total mix variance	0.5
	<u>4</u>
(iii) SQSM or \$4,683.33 kg (depending on method used)	1
Variance quantity or 83.33 kg (depending on method used)	0.5
Variance in \$ or calculation of \$4 (depending on method used)	1
Total yield variance	0.5
	<u>3</u>
(b) Controllability issues	5
Other relevant points relating to performance	4
	<u>9</u>
	<u>20</u>

PM Examiner's commentary on September/December 2018 sample questions

This commentary has been written to accompany the published sample questions and answers and is written based on the observations of markers. The aim is to provide constructive guidance for future candidates and their tutors, giving insight into what the marking team is looking for, and flagging pitfalls encountered by candidates who sat these questions.

Question 31

OSC Co shares similarities with recent questions examined on the performance measurement section of the syllabus (Section D). The question had numerical information as well as other details regarding the business, candidates were asked to appraise the performance using a given framework, and in this case, Fitzgerald and Moon's building block model had to be used.

Whilst the building block model has not been examined as much as the balanced scorecard, it is still an important area of the syllabus, and shows the need to cover the whole syllabus in preparation for the exam. A broad knowledge of the model would serve the candidate well on this question as it is better to have a good understanding of the whole syllabus than be an expert in a couple of areas and hope they come up in the exam. As such candidates are recommended to cover the breadth of the syllabus.

With more detailed discussion below, it can be found that OSC Co was not a highly technical question; however candidates still struggled to achieve high scores. The reason for this seemed to be poor exam technique by not addressing the requirement. So the focus for this advice will be on getting the most out of this question, rather than just reproducing the suggested solution.

Firstly, from an exam technique point of view, it is important to read the first paragraph (or maybe just couple of lines if it is a long paragraph) to gather insights on the business the question is about. In this case, candidates had to deal with a car maintenance company. There was also some information about the market (competitive) and the overall aim of the business (pleasure not a chore). It is easy to skim over this information, but it can help add substance to an answer. It is advised to make notes on some of the key points and to refer to them later when answering the question. Some candidates prefer to highlight information which is also good, but writing something down can make it easier to remember later.

Requirement (a) – 16 marks

For each of the dimensions of the building block model, calculate one performance indicator for MSC and one for the OSC average using the data available. Briefly justify your choice of performance indicator and discuss MSC's performance relative to the other OSC service centres.

As the requirement is fairly lengthy, it is absolutely crucial not to rush through in answering the question as some points might be missed. For 16 marks, a lot of thought is required, but there is time to think and prepare a suitable structure for the answer. In a three hour exam, the 'golden rule' is 1.8 minutes per mark (180 minutes/100 marks), however it might be better to allow only 1.5 minutes, so as not to overrun, and allow some time at the end for checking and dealing with any loose ends. Either way there is, at least, half an hour to attempt this part, and whilst the time will pass quickly, a couple of minutes of care at the start can really pay dividends later.

What do we mean by not rush? Take the time to break the requirement down, as there is often more than one requirement within an overall requirement. In addition, the question scenario contains other information which can help to answer the question. So, looking at this requirement, the key points are:

For each dimension of the building block model

This suggests that the same thing has to be done several times i.e. once for each dimension of the model. We can also start to think about what the dimensions are, but should carry on and see what else is required before focusing on that. For written questions like this one, it is essential to use headings – this question already presents candidates with that opportunity as each dimension can act as a heading. This has two benefits: firstly it will be easier to make sure the requirement is fully answered and (perhaps more importantly) easier for the marker to see that the requirement has been covered.

Calculate one performance indicator for MSC and one for the OSC average

OSC Co was mentioned in the first paragraph as the One Stop Car Co. However, at that point we do not know anything about MSC, so will need to read the scenario to find out who they are. Candidates know that, under each dimension heading, they need to choose a suitable performance indicator and calculate it for both MSC and the OSC average.

Briefly justify your choice of the performance indicator

This was the part of the requirement most often missed by candidates. The choice of performance indicator needs to be justified i.e. why are we choosing to measure what we are measuring? Linking this back the start of the requirement, which was to calculate a performance indicator for each dimension, we need to explain why the chosen indicator measures performance for its associated dimension. This is another example of why it is crucial to break down the requirement and make sure all parts are answered.

Discuss MSC's performance relative to the other OSC service centres

It is important to remember; this is still 'for each dimension'. So candidates should use their calculations to discuss the relative performance. The detail of the discussion will be addressed later, but now we have the structure for the answer:

Dimension 1

Performance indicator calculation

Justification of performance indicator

Discussion of MSC's performance relative to other OSC centres

Dimension 2

Performance indicator calculation

Justification of performance indicator

Discussion of MSC's performance relative to other OSC centres

The above structure is an example of how the answer can be laid out. A minority of candidates presented tables, which also worked really well. Using headings would also work and most candidates did use the dimensions as headings, but followed that up with a jumble of words and calculations, without making it clear which part of the requirement they were addressing.

The other advantage of breaking down the requirement is that the daunting 16 marks requirement will look more approachable. There are six dimensions, so (roughly speaking) there are about 3 marks for each heading. This should guide candidates on how long they should spend on a particular dimension, and breaks the requirement down into shorter, easier chunks. Considering the advice above, even if a candidate was struggling on one particular dimension, they could still pass as they would have covered the requirement for the remaining dimensions.

Now that there is a structure to the answer, the focus can be turned to finding the numerical information which can be used for the calculation of the chosen performance indicators. This is normally fairly obvious, as is the case here. The other key thing to look for is the written information about what the aims of the business are, for example, if there is a focus on quality then it is less important to judge them on cost-cutting. This is harder to find, but essential. Other, similar performance management questions might ask candidates to structure the answer around the aims of the business, rather than use a model and this information will be in the scenario. Some examples of key information given for OSC Co are the national website information including range of service packs (offering customer choice), average wait times of two hours, watching the friendly and experienced mechanics, freshly made tea and coffee and rewards for feedback.

The key information points towards a focus for OSC Co on customer satisfaction and providing quality work. The two hour wait time is especially important if there is a target, it can be used to assess performance.

The final paragraph of the scenario also lists the six dimensions of the model. This might have come as a relief to many candidates, and shows the importance of reading the question fully. These are the headings which should be used in structuring the answer.

At this point, it is probably worth spending a couple of minutes trying to identify a performance indicator for each dimension. If a candidate is struggling with one dimension, then they should leave it and come back to it later, but often it can be found that one indicator explains another, so candidates should do what they can before they get bogged down in the question – they should write down the headings and see if any of the information jumps out as measuring that dimension.

As mentioned earlier, it is not intended in this commentary to reproduce the suggested solution, but the illustration below should give a candidate an idea of how to approach the answer:

Financial

Looking at the information, the key financial information given is sales revenue and gross profit. Most candidates recognised that gross profit margin (GPM) was the most suitable measure and calculated this. However, some candidates made the common mistake of comparing performance using absolute measures, for example saying “the OSC average shows higher sales revenue than MSC therefore the other OSC service centres are on average performing better”. This simply does not work as there are so many reasons why sales revenue may be higher such as the size of the local market hence the comparison is not valid.

Now that gross profit margin (GPM) has been chosen, how to score well will depend on how the requirement is addressed and how the answer is laid out.

*GPM % = gross profit/sales revenue * 100%*

*MSC = \$ 304,200/\$ 760,500 *100% = 40.0%*
*OSC average = \$ 328,146/\$ 890,365 * 100% = 36.9%*

Justification – I have chosen gross profit margin as it is a good indicator of financial performance, showing how costs are managed relative to selling prices.

There is not much which can be said to justify GPM as a financial performance indicator, apart from the fact that it is a key financial performance indicator. By stating this though, it is clear that this part of the requirement has been addressed.

For the performance analysis section, many candidates made the following comments: “MSC has a higher profit margin than the OSC average, so is performing better.” It is very hard to award any credit to responses such as these, as there is no depth in that answer. To score well on these questions, it is important to explain **WHY** the performance is better or worse. This is often achieved by linking to other measures, but sometimes generic explanations can be used as a good place to start as they can lead to more detailed explanations.

Gross profit margin will be higher either because selling prices are higher, or cost/unit is lower. We could start by stating that.

MSC’s gross profit margin is higher than the OSC average. This could be because costs are being managed better or sales prices are higher.

Candidates should then try to identify if there is any information in the question scenario which backs this up. The information about costs was limited, although there are less mechanics in MSC compared to the OSC average, which would help reduce costs. The selling prices can also be calculated using total revenue and the number of jobs available, so the price per job is a relatively quick calculation:

MSC: $Price/job = \$760,500/9,506 = \80
OSC average: $Price/job = \$890,365/11,870 = \75

This implies that MSC's higher price is contributing to the higher margin, which can be added to the answer above.

MSC's average price per job is \$5 higher than the OSC average, which could be the reason for the higher margin.

It could have been tempting to discuss the implication of the price on demand for example, which of course would have been a bonus. But even if the answer is kept as suggested above, it would have answered the requirement.

Competitiveness

An appropriate measure linked to attracting and retaining customers must be chosen here. From the information given, measures such as number of website hits, number of jobs booked, repeat customers and feedback scores would all help here, but it is important to choose something which would answer the question.

As for **Financial**, many candidates chose to use absolute figures to compare performance, for example number of website hits. This approach does not work as it is not a fair comparison: one branch might have more website hits simply because there are more customers in that area. A relative measure such as the percentage of feedback forms showing 9 or 10 would be valid here. It can be justified by saying that happy customers are likely to come back, and also tell their friends, making one firm more competitive than the other. However, the requirement specified the **calculation of** a performance indicator, so an indicator which can be calculated from information in the scenario should be chosen. What could be helpful is how well the website works, i.e. how many of the people visiting the website were impressed enough to book a job. Therefore the percentage conversion rate would show this perfectly:

Percentage conversion rate = Total jobs/Website hits

MSC: $Percentage\ conversion\ rate = 9,506/14,000 * 100 = 67.9\%$
OSC average: $Percentage\ conversion\ rate = 11,870/18,260 * 100 = 65\%$

Justification - A higher conversion rate means that a greater proportion of people visiting the site are booking jobs, thereby increasing the market share and competitiveness.

In terms of assessing the performance, as with **Financial**, it is not enough to say MSC is outperforming the OSC average. Why are they better? The information given on the number of new service packs developed could be used to explain the competitiveness of MSC.

MSC is converting a greater proportion of its website hits into bookings, which will help to increase its market share, boosting its competitiveness. This could be linked to the number of new service packs developed; MSC developed 3 packs whereas the other OSC service centres had only 2 packs. Therefore MSC offer a greater range of services, meaning that customers are more likely to book.

As with any written answer, this is not the only possible response, nobody will reproduce the suggested solution, but as long as the requirement is addressed and sensible points are made, credit will be given.

Requirement (b) – 4 marks

Explain how the standards and rewards blocks support the dimensions block in Fitzgerald and Moon’s building block model.

This requirement requires a more thorough understanding of the model than part (a), but obviously for much fewer marks. Again, the key point here is to address the requirement, this is not just asking candidates to explain what the standards and rewards blocks are, but how they support the dimensions. From part (a) the dimensions and goals for the business is known. The standards are how we measure whether the goals have been achieved, and the rewards are how we reward our employees for meeting the standards. These should be mentioned as a minimum, but the requirement of how standards and rewards support the dimensions block must also be addressed.

Candidates could have simply suggested that ‘if we do not choose suitable measures, we might not achieve the goals, as our staff will be trying to achieve irrelevant goals’ or ‘If we do not reward the staff appropriately, they will not be motivated to improve the standards and achieve the goals’.

However, discussion on the ‘achievability, ownership and equity’ in terms of standards and ‘clarity, controllability and motivation’ in terms of the rewards, would make the answer more complete. As mentioned earlier, a broad understanding of the model would be enough to score well on this question, anything else is a bonus.

Question 32

Kappa Co

Kappa Co was a typical variance question (Section C of the syllabus) where 11 marks were allocated for the calculation of material usage, mix and yield variances and 9 marks for the discussion of the problems caused by the company's current system of calculating and reporting variance for performance management. Variance analysis questions often follow this approach of asking for a number of calculations and then discussion on the implications of those calculations for assessing performance. This particular question added an extra element to the narrative part by asking about the reporting aspect also.

Requirement (a) – 11 marks

Calculate the following variances for the last month:

- (i) the material usage variance for each ingredient and in total; (4 marks)
- (ii) the total material mix variance; (4 marks)
- (iii) the total material yield variance. (3 marks)

The requirement was fairly standard and straightforward, it was evident that many candidates had clearly studied and practiced material usage, mix and yield variance questions and were therefore able to score the full marks. However, it was surprising that some candidates either did not attempt, or failed to calculate an accurate material usage variance. It is important to remember that the knowledge acquired in Management Accounting (MA) exam for the Applied Knowledge level can still be tested within the Performance Management (PM) exam.

Candidates attempting the mix and yield variances either understood the approach correctly or not at all. On several occasions candidates confused the material usage variance with the yield variance. Some common mistakes across parts (a) were:

Using incorrect prices:

Material usage, mix and yield variances are all calculated using the standard price, but some candidates used the actual price of the ingredients. Others used a mixture of the two creating meaningless variances.

Not converting the quantity variance into a monetary variance:

To complete the variance calculations and see the impact on profit of the material usage, mix and yield, the variances cannot be left in kilograms but must have a price applied to them so the impact of the monetary value can be assessed. Some candidates simply calculated the difference in the standard and actual quantities without any further steps being taken.

Failing to state whether the resulting variance is favourable or adverse

It is insufficient for a variance to be left as a positive or a negative as the indicator of its sign. Candidates should clearly indicate whether the variance is favourable or adverse. Whilst candidates could write favourable or adverse, the use of an F or A after the variance figure would also be sufficient.

Failing to add up the individual variances:

In all three sub requirements for part (a), a total variance figure was required to score full marks. Some candidates did accurate workings for their individual variances but neglected to add up their variances to get the total variances.

The spreadsheet functionality in CBE lends itself nicely to variance calculations. The use of the variance proformas would allow time saving as data can be copied and pasted and formulas could be used. For example, the Standard Quantity in Actual Mix (SQAM) column required for the mix variance is also used in the yield variance proforma. In addition the total mix and yield variances should add back to the total usage variance which can be easier to see and reconcile in the spreadsheet. In terms of formulas, the difference between the SQAM and AQAM columns in the mix variance could be done for the first ingredient and then the formula copied and pasted for the remaining two ingredients. The same approach to the use of formulas could also apply to the final variance calculations in the last column of the proforma.

Requirement (b) - 9 marks

Discuss the problems with the current system of calculating and reporting variances for assessing the performance of the production manager.

Part (b) was the most poorly answered part of the question. Many candidates either did not read the requirement carefully enough or not understand what it was asking for. In the scenario, the production manager receives a report at the end of each month including variances, some of which he has no control over and he does not receive any feedback or explanations from the finance team. The requirement asks for a discussion of the problems arising from using this report to judge the performance of the production manager, but instead many candidates gave recommendations of how to overcome the issues with the current system. Whilst this showed an understanding of the scenario, the advice did not address the requirement and therefore could not score any marks.

A well-structured answer would have stated the problems with the current system, explained why it was a problem and the impact that it could have on the company and the production manager. Sadly very few candidates used this approach. Some candidates, who took this approach focussed only on one or two issues, resulting in them scoring limited marks due to a lack of breadth in their answer.

Some candidates simply copied out statements in the scenario without explaining the actual problem that these statements would create. A few candidates ignored the requirement entirely and gave an explanation and discussion of the material usage, mix and yield variances which they calculated in part (a). Whilst their answer may have been completely correct and could have scored highly had the requirement been to discuss the variances, but sadly it was not.

Candidates are encouraged to read the requirement carefully and ensure they are answering the question asked. Like with the OSC Co question, it would have been helpful if candidates had broken down this requirement. It mentions 'calculating' and 'reporting' and so both aspects needed to be addressed in the answer. Candidates needed to use the information supplied in the scenario to help them flesh out their answer here. It might have been useful to use two headings to structure your answer.

In terms of the calculation aspect of the variances the scenario refers to price and quality of materials being volatile and standards being based on historic information. This should have indicated a controllability issue for the production manager and perhaps the benefit of using planning and operating variances. The reporting aspect includes variances not in control of the production manager and also that the manager receives no commentary on the variances.

Narrative answers should focus on the approach 'what is my point and why is it relevant?' This approach allows candidates to add depth to their points and score development marks. For example;

'A problem with the calculation of the variances is that Kappa Co makes no use of planning variances. This would be useful as the standard price is a five-year average and the standard mix hasn't changed for five years so the production manager is being held accountable for variances based on out of date information.'

As we can see the point being made is about the lack of use of planning variances but it is developed further to say why these would be useful for the assessment of performance of the production manager. Candidates should adopt this 'what and why' approach to all narrative questions which apply to a question scenario. This is a key skill which will improve answers to all examinations taken in the future.