Level 5  Advanced Diploma in Procurement and Supply

AD6 - Operations management in supply chains

EXAM EXEMPLAR QUESTIONS

QUESTIONS AND INDICATIVE ANSWER CONTENT
Q1   Learning outcome: 1.0

(a) Explain the role and responsibilities of an operations manager within an organisation.

(10 marks)

(b) Compare and contrast the activities within operations management across THREE different sectors.

(15 marks)

Marking scheme

(a) Answers should include a definition of operations management and an explanation of the operations management process, specifically highlighting the role and responsibilities of an operations manager which might include areas such as:

- Ensuring productive activity is carried out effectively and efficiently
- Ensuring efficient use of resources to meet customer requirements
- Providing cost-effective and timely operations
- Measuring performance of productive activity
- Design of effective systems and processes
- Other appropriate areas should also be accepted.

Answers should recognise that operations managers have direct responsibility for all activities within the input-transformation-output process and indirect responsibility for the links between operations and other key functions. Up to 10 marks are available in total for part (a).

(10 marks)

(b) Answers are required to consider THREE different sectors which might be selected from sectors such as: manufacturing, services, not-for-profit, retail, construction or other relevant sectors.

Depending on the sectors selected, answers might include consideration of factors such as:

- Sector specific input-transformation-output issues – e.g. the relative importance of management of materials, products or people
- Reliance on specialised materials/people to deliver the product or service
- Private and public sector issues
- Manufacturing and service sector issues
- The role of logistics
- How performance/efficiency is measured
- Customer requirements
- Health and safety issues
- Other appropriate factors should also be accepted.

Answers should compare and contrast the role and activities of operations management within the different sectors selected based on particular sector characteristics and required outcomes.
For example, measuring quality performance in the services or not-for profit sectors can be much more challenging than in the manufacturing sector and health and safety considerations in construction will differ greatly from those in retail. As a guide, up to 5 marks will be awarded for each sector considered.

In addition to identifying differences and similarities, higher scoring answers will provide analysis of why they might occur and the implications for organisations in those sectors.

(15 marks)

CIPS study guide reference: Chapter 1
Q2 Learning outcome: 2.0

Using a product of your choice, examine the content and purpose of the design process.

(25 marks)

Marking scheme

Pass grade answers are likely to include the following content

A definition of product design might be included such as ‘The act of producing a drawing, plan or pattern showing details of something to be produced or constructed’. Also an explanation of the phases of a design process. Answers should recognise that effective product design can be achieved using a 7 stage design process, the content of which is as follows:

1. Idea generation
2. Screening
3. Business analysis
4. Concept testing
5. Product development
6. Market testing

Answers might also include the following content considerations; the benefits of building in quality e.g. Taguchi methodology; the importance of having the right specification – performance or conformance; the use of appropriate design tools such as standardisation, value analysis and engineering; the use of cross-functional teams to ensure buy in from key internal stakeholders and the incorporation of sustainability factors throughout the process.

The purpose of new product design is generally to gain or improve competitive advantage by producing products that customers want while achieving a reasonable profit. Customers generally want lower prices, higher quality and more customised features so the introduction of innovative and exciting products can lead to greater market share and improved revenue. By using a design process and considerations such as those above, organisations can increase the likelihood of successful new product introduction.

Cross-functional teams can make a particularly important contribution to the product development process as members will provide input and perspectives from key internal stakeholder areas of the organisation such as design, marketing, sales and procurement through to operations, logistics and finance.

Answers should examine areas such as those above including reference to both the content and purpose of the design process in the context of the product selected.

Stronger answers will provide a comprehensive examination of the product design process through all stages and demonstrate an in-depth awareness of the important considerations for achieving competitive advantage.
As a guide, answers are expected to focus roughly equally on content and purpose of the design process. (25 marks)

CIPS study guide reference: Chapter 5
Q3 Learning outcome: 3.0

(a) Explain with an appropriate example, how a materials requirement planning (MRP) system works.

(15 marks)

(b) Discuss the benefits and challenges associated with the implementation of an MRP system.

(10 marks)

Marking scheme

Pass grade answers are likely to include the following content

(a) Candidates should start by explaining, with an example how MRP systems work in terms of:

- Master Production Schedule – includes forecast demand and actual orders
- Explosion of BOM – a detailed breakdown of all component parts within the final product
- Stock levels – quantity, location and transaction records
- Lead-times – time required from order to delivery including safety margin.

Up to 5 marks should be awarded for an appropriate diagram or example.

An explanation of how the main elements work together should also be included and answers should give an explanation of the calculations that are performed by MRP using the information from the MPS, BOM and stock data such as; material requirements per finished unit and time-phased net material requirements.

(15 marks)

(b) The main benefit comes from the co-ordination of purchasing activity in terms of purchase orders in progress and recommended aggregation of materials and components that have dependent demand. MRP systems also help to manage stock levels and scheduling.

Answers should provide discussion regarding the explosion of the BOM via the MPS and how MRP takes into account the lead-times of raw materials and components in order to tie this in to delivering the final product on time. MRP also gives information about what is on order.

Implementation can be challenging due to:

- Difficulties defining user needs, training and development
- Accuracy of data and also adapting to new processes and procedures
- Need for accurate stock data
- Managing the people element of the implementation – ensuring good project management and having a steering group to direct the necessary work streams
- The need for implementation and consultancy support which can fit in with supplier selection.
Answers are expected to place roughly equal emphasis on benefits and challenges associated with implementing MRP systems. Stronger answers will provide a well-balanced discussion and demonstrate a comprehensive understanding of MRP systems, their benefits and limitations as a ‘push’ method of control.

(10 marks)

CIPS study guide reference: Chapter 8
Q4  Learning outcome: 4.0

(a) Explain the differences between repair and preventative maintenance.  

(b) Discuss the implications of each approach when developing an asset maintenance strategy.

Marking scheme

Pass grade answers are likely to include the following content

(a) Answers should provide a definition of the two approaches which might be supported by an appropriate graph of costs versus level of preventative maintenance.

Answers should explain that repair maintenance is reactive and generally relates to equipment failures and related problems. Preventative maintenance is pro-active and aims to avoid or reduce failures through regular scheduled inspection and attention.

Stronger answers will also recognise that the appropriateness of the two approaches will depend on factors such as industry sector and level of investment required in equipment and machinery.

Up to 8 marks are available for part (a).

(b) The discussion here relates to the implications of planned and unplanned maintenance. Whilst planned preventative maintenance tends to be more expensive initially, it can actually prove cheaper than responding to equipment failure if the costs are considered holistically in a whole life costing approach. Unplanned repair maintenance can be very disruptive and the operations manager will need to carefully consider factors such as levels of after-sales support, availability of spares, response times and the associated costs.

Up to 7 marks for this part.

The final 10 marks are available for identifying the operational and cost implications for an organisation in terms of loss of production and disappointing customers. For example, in capital intensive sectors it is a major area that needs close attention as failure can cost much more than just the lost production. It can lead to lost reputation and lost long term business and even legal challenges for not supplying.

Answers should recognise and discuss the implications for the business as a whole. Planned preventative maintenance will ensure maximum uptime to ensure that an organisation delivers its products on time every time. It is about utilising assets when they are needed in order to be productive and deciding when the best opportunities are for downtime at a time to suit the organisation.

Stronger answers may use appropriate examples and will recognise that planned preventative maintenance is part of the lean approach and should ensure that an organisation has better control of maintenance and repair costs in the longer term.

CIPS study guide reference: Chapter 10