



Principles of Business Operations

02 June 2016

Marking Scheme

This marking scheme has been prepared as a **guide only** to markers. This is not a set of model answers, or the exclusive answers to the questions, and there will frequently be alternative responses which will provide a valid answer. Markers are advised that, unless a question specifies that an answer be provided in a particular form, then an answer that is correct (factually or in practical terms) **must** be given the available marks.

If there is doubt as to the correctness of an answer, the relevant NCC Education materials should be the first authority.

Throughout the marking, please credit any valid alternative point.

Where markers award half marks in any part of a question, they should ensure that the total mark recorded for the question is rounded up to a whole mark.

Question 1

- a) List FIVE (5) benefits that an organisation can achieve through the effective use of *forecasting* and *demand planning*. 5
Award 1 mark for each correct point (5 maximum) including:
- ***Higher capacity utilisation***
 - ***Reduced inventories and costs***
 - ***More efficient process performance***
 - ***Increased flexibility***
 - ***Improved customer service***
 - ***Increased profits***
- b) Explain why senior managers are more likely to use *longer-range forecasts* than operational managers. 4
Award 1 mark for each correct point:
- ***Senior managers are more involved with strategic planning***
 - ***Strategic planning requires the senior manager to take a longer-term view***
 - ***Operational managers are more involved with day to day activities***
 - ***They therefore tend to view things in shorter horizons***
- c) Describe THREE (3) roles that the *master production schedule* plays in resource planning. 6
Award up to 2 marks for each correct point:
- ***It details what needs to be produced and by when***
 - ***It assists managers in generating priorities when they are scheduling work***
 - ***It sets the due dates for production of specific individual items***
- d) *Resource planning* is commonly described as a “3-stage process”. List these THREE (3) processes. 3
Award 1 mark for each correct process:
- ***Aggregate planning***
 - ***Disaggregation***
 - ***Execution***
- e) Define the role of an *intermediary* in a technology value chain. 2
Award 2 marks for correct definition, 1 mark for partial definition:
- ***Any entity (real or virtual) that co-ordinates and shares information***
 - ***Between a buyer and a seller***

Total 20 Marks

Question 2

- a) *Customer satisfaction* is a commonly used key performance measure. Explain why this is the case and list THREE (3) measures that can be used to identify the levels of customer satisfaction. 6

Award up to 3 marks for explaining why customer satisfaction is a commonly used key performance measure (allow any reasonable points which may include the following):

- ***Vital to know how the customer perceives the organisation and the products/services it supplies***
- ***Important to understand what the organisation does well and what it does poorly***
- ***Level of customer satisfaction can point to problems which need to be resolved***
- ***A lack of understanding of poor customer satisfaction may result in customers going elsewhere***

Award 1 mark for each appropriate measure (3 maximum) including:

- ***Customer perception of the quality of the goods supplied***
- ***The level and quality of service provided***
- ***The response time (e.g. to fulfil an order or respond to a query or complaint)***
- ***Repeat custom***

- b) Why would an organisation use the *Malcolm Baldrige National Quality Program*? 4

Award 1 mark for each correct point:

- ***To assess organisational performance***
- ***Provides a framework for performance excellence***
- ***Uses a self-assessment approach***
- ***Helps in understanding an organisation's strengths and weaknesses***

- c) What are the main characteristics of a *customer benefit package*? 4

Award 1 mark for each correct characteristic

- ***A clearly defined set of tangible (goods) and intangible (services)***
- ***That a customer recognises and pays for***
- ***The customer will use or experience these goods or services***
- ***They meet both primary and peripheral customer wants and needs***

Marks
6

- d) Explain the key differences between a B2B business relationship and a B2C business relationship and give ONE (1) example of each.
Award 2 marks for each correct description, plus 1 mark for each correct example, to a maximum of 6 marks.

B2B – business to business

- ***Transaction involves a business dealing directly with another business, one is the supplier, the other uses the product or service in their own business***
- ***Give credit for any reasonable example***

B2C – business to customer (or consumer)

- ***Transaction involves a business selling to an individual customer or consumer, who is the end user of the product or service***
- ***Give credit for any reasonable examples***

Total 20 Marks

Question 3

- a) List FOUR (4) ways in which *team working* can help to improve the job satisfaction of individual employees. 4

Award 1 mark for any reasonable point, which may include:

- ***Working towards, and achieving, shared goals can increase motivation and job satisfaction***
- ***Opportunities to rotate jobs within the team can improve job satisfaction***
- ***Social interaction with teammates***
- ***Having a common purpose as a team***
- ***Opportunities for job enlargement within the team***

- b) Product layout and process layout are two approaches commonly used in *facilities design*. Briefly describe both of these layout patterns and give ONE (1) example of a disadvantage for EACH. 10

Award 4 marks for correct descriptions of each layout pattern (8 maximum), plus 1 mark for each correctly identified disadvantage, to a maximum of 10 marks.

Product layout:

- ***Arrangement is based on the sequence of operations***
- ***That are performed during manufacture***
- ***Goods or services move in a continuous path***
- ***From one process to the next, e.g. a paper mill***

Process layout

- ***Functional group of equipment or activities***
- ***These do similar work***
- ***They are located together***
- ***Tasks may be moved in different sequences between departments***

Disadvantages may include:

Product:

- ***If one part of the process breaks down, the whole process stops***
- ***Process layouts are generally inflexible***

Process:

- ***High movement and transportation costs***
- ***complicated planning and control systems***
- ***longer processing time***
- ***higher worker skill levels required***

c) Why is *scheduling* vital to the effective operation of a supply chain?

Award 1 mark for each reasonable point, which may include:

- ***A supply chain is made up of facilities, processes and logistics***
- ***The main requirement is to have the right product in the right place at the right time***
- ***Supply chains are frequently associated with just-in-time systems***
- ***Scheduling will ensure, for example, that the right goods are on the right lorries***
- ***It will help to ensure that goods arrive on time at the correct destination***
- ***Without effective scheduling longer journeys may have to be made, or multiple deliveries may have to be made***
- ***The impact of poor scheduling is not only late delivery but also increased costs***
- ***Poor scheduling may result in missed air flights if the supply chain is serving a global marketplace***

Total 20 Marks

Question 4

- a) Briefly describe the key differences between a *process* and a *value chain*. 4
Award 1 mark for each correct point.
Process:
- **The building blocks for the creation of goods and services**
 - **A sequence of activities to create a result – goods, services or information**
- Value chain:**
- **A network of processes**
 - **The network is used to create value for a customer**
- b) *Continual learning* is commonly viewed as a key operations management activity. 4
 Explain why this is the case.
Award 1 mark for each correct point (maximum 4):
- **In a fast changing business it is vital that an organisation can adapt to changes and new opportunities**
 - **Employees need to continually learn (from colleagues and through appropriate training) in order to be capable of change**
 - **Organisations can learn from their competitors – “what do they do well that we could copy and benefit from?”**
 - **Organisations can learn from customer feedback - what products/services are popular and which need to be improved or dropped**
 - **If an organisation does not continually learn it will be in danger of standing still and being left behind by its competitors**
- c) Define the term *operations management*. 2
Award 2 marks for correct definition, 1 mark for partial definition:
The science and art of ensuring that goods and services are created and delivered successfully to customers
- d) Give TWO (2) reasons why it is important to keep *manufacturing design* as simple as possible. 4
Award 2 marks for each valid reason (4 maximum which may include):
- **The simpler the design – the less prone goods are to errors**
 - **Simply designed goods are more reliable than more complex goods.**
 - **Simply designed and reliable goods increase quality and therefore improve customer satisfaction**

- e) Compare and contrast the following types of *processes* used by manufacturing companies: **6**
- Job-shop
 - Flow-shop

Award 1 mark for each correct point, to a maximum of 6 marks.

Job-shop:

- ***Organised around particular general purpose equipment***
- ***Flexible***
- ***Capable of customising work for customers***

Flow-shop

- ***Organised around a fixed sequence of activities and process steps***
- ***Relatively inflexible***
- ***Can only produce a limited variety of goods***

Total 20 Marks

Question 5

- a) Briefly describe THREE (3) measures that can be used to assess *supply chain efficiency*. 6

Award 2 marks for each correct measure, to a maximum of 6 marks:

- **Average inventory value – value of all items and materials held in inventory**
- **Inventory turnover – speed at which goods move through the supply chain**
- **Inventory days' supply – number of days of inventory is in the supply chain**

- b) Explain how the following technologies can help to make supply chains more effective: 6

- RFID
- EDI

Award 1 mark for each correct point, to a maximum of 6 marks.

RFID:

- **Electronically tags goods in the supply chain**
- **Can speed up the identification of goods that have been received**
- **Can also help in updating inventory records in warehouses and generating bills of lading**

EDI:

- **Streamlines information flow between business partners**
- **Orders arrive quicker and do not need re-keying, so eliminating errors**
- **All related documents such as invoices can be generated automatically**

- c) Explain what is meant by the *Six Sigma* quality management technique and identify THREE (3) of the principles upon which is based. 5

Award 2 marks for the explanation and 3 marks for listing 3 principles (to a maximum of 5 marks):

The Six Sigma quality management technique focuses on setting high objectives that affect the customer with the aim of reducing the number of product defects.

Allow any three of the following principles:

- **Define (customers and priorities)**
- **Measure (processes and performance)**
- **Analyse (causes of defects)**
- **Improve (remove causes of defects)**
- **Control (maintain improvements)**

Marks
3

- d) Explain why forecasting is so important in *push system* inventory control.
Award 1 mark for each relevant point (maximum of 3 marks).
The company will produce enough products to meet the forecast demand (1 mark). Forecasts are sometimes inaccurate as sales can be unpredictable and vary from one year to the next (1 mark). If too many products are produced, this increases the company's costs for storing these goods (1 mark). If forecasting is below demand then the company could have lost out on valuable sales.

Total 20 Marks

Question 6

- a) List and briefly describe THREE (3) reasons why an organisation would select an *offshoring* approach. 6
Award 1 mark for each correct reason, plus a further mark for a description, (to a maximum of 6 marks), which may include:
- *To reduce costs – through the use cheaper labour and/or materials*
 - *To gain specific local skills or knowledge – to tap into a local labour market that has specialist skills*
 - *To supply specific markets – moving the manufacturing process nearer a market will simplify the supply chain activities and reduce costs*
 - *To gain a foothold in a particular overseas market – using a partnership with a local partner to gain access to a market that may be wary of dealing with an overseas supplier*
- b) Explain how *exciters* and *delighters* can help an organisation to gain competitive advantage. 4
Award 1 mark for each correct point:
- *These are new or innovative features that customers do not expect*
 - *When they are provided they add value to the product or service*
 - *Adding the extra value to a product over and above that offered by competitors means that the product becomes more attractive*
 - *This will typically result in a competitive advantage, though this may only last for a limited time*
- c) List the FOUR (4) customer demands that combine to create *value*. 4
Award 1 mark for each correct point:
- *High quality products*
 - *Quick response times*
 - *Excellent service*
 - *Low prices*
- d) Explain why it is important for organisations to be flexible in order to respond quickly to changes in the marketplace? 3
Award 1 mark for each correct point:
- *Important from a competitive perspective*
 - *If there are changes, an organisation must be flexible enough to exploit these and gain the resultant benefits*
 - *If they are unable to take advantage of any changes, their competitors may and will thus gain competitive advantage*

Marks

- e) Explain how *value stream mapping* contributes to an efficient, lean organisation. **3**
Award 1 mark for each relevant point
Value stream mapping maps information and resources through the production process (1 mark), it shows which activities add value (1 mark) and how long it takes (1 mark). It helps to find waste in the process and address this (1 mark).

Total 20 Marks

End of paper

Learning Outcomes matrix

Question	Learning Outcomes assessed	Marker can differentiate between varying levels of achievement
1	2, 4	Yes
2	1, 2	Yes
3	3, 4	Yes
4	1, 3	Yes
5	4, 5	Yes
6	1, 5	Yes

Grade descriptors

Learning Outcome	Pass	Merit	Distinction
Examine the frameworks of operations management	Provide examination of the subject with some suitable examples and references	Provide detailed examination of the subject with adequate use of appropriate references and examples	Provide consistently critical and detailed examination of the subject with innovative use of highly appropriate references
Analyse the use of technology in operations management	Demonstrate adequate ability to analyse the topic	Demonstrate ability to provide detailed and coherent analysis of the topic	Demonstrate ability to provide comprehensive, lucid analysis of the topic
Assess the design of goods and services	Demonstrate an adequate awareness of issues associated with the subject and make some appropriate judgements	Demonstrate a sound awareness of issues associated with the subject and make consistently appropriate judgements	Demonstrate a detailed awareness of the complexity of issues associated with the subject and make highly appropriate judgements
Analyse how operations management processes are developed	Demonstrate adequate ability to analyse the topic	Demonstrate ability to provide detailed and coherent analysis of the topic	Demonstrate ability to provide comprehensive, lucid analysis of the topic
Evaluate the use of lean operations	Provide a reasonable assessment of the subject; Ideas are generally coherent	Provide a generally strong assessment with some well-reasoned assumptions; Ideas are consistently coherent	Provide a consistently strong assessment with well-reasoned and original assumptions; All ideas are highly coherent