**MNO3701**

October/November 2016

**PRODUCTION AND OPERATIONS MANAGEMENT**

Duration 2 Hours

70 Marks

**EXAMINERS :**

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Use of a non-programmable pocket calculator is permissible.

Closed book examination.

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This paper consists of 24 pages

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Make sure the following information appears on the cover of your answer script.

- your student number
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This examination paper consists of two sections

**Section A** consists of question 1, which contains ten multiple-choice questions. Please answer this question in the block provided in your answer book. This question is worth 10 marks.**Section B** consists of three questions, namely questions 2, 3 and 4. Each of these questions is worth 30 marks. You have to select any **two (2)** questions and answer them for a subtotal of 60 marks.

Sections A and B together count 70 marks.

**SECTION A:**

QUESTION 1 ANSWER ALL THE QUESTIONS IN THIS SECTION 10 marks

**SECTION B:**QUESTIONS 2, 3 and 4 SELECT **ANY TWO (2)** OF THE THREE (3) QUESTIONS 60 marks**70 marks****[TURN OVER]**

**SECTION A**

**ANSWER EACH OF THESE QUESTIONS IN THE BLOCK PROVIDED. ANSWER ALL TEN QUESTIONS.**

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**QUESTION 1**

1 1 Identify the **three (3) core** functions of any organisation.

- a the marketing function, which is responsible for communication
- b the product/service development function, which is responsible for creating new offerings
- c the political function, which is responsible for lobbying with stakeholders
- d the operations function, which is responsible for fulfilling the customer's request
- e the logistics function, which is responsible for the transport of people

- 1 a, b, c
- 2 a, b, d
- 3 b, c, d
- 4 c, e, e
- 5 a, c, d

Answer:
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**[TURN OVER]**

- 1 2 Which **two** (2) of the following statements are **correct** with regard to the production and operation management strategy?
- a The operation's competitive role and position, together with the articulation of the specific performance or strategic objectives it hopes to achieve, largely influence the content of the production/operations strategy of the business
  - b The hierarchical position of the production/operations strategy in relation to the corporate or business strategy depends on how management view the potential of the production/operations function in contributing to the long-term success of the business
  - c The process aspects of the production/operations strategy largely determine the relative priority of the performance objectives of the business and further relate to each of the specific decision areas in the design, planning and control, and the improvement of the production/operations management system.
  - d The relative importance that a business attaches to specific performance objectives is determined by the influence that customers/clients may have on the business, its competitors and the stage of the business's products or services in their life cycles
  - e The operation's infrastructural strategy areas are primarily influenced by the design activities (i.e similar to the hardware of a computer system), while the structural strategy areas are influenced by the planning and control and improvement activities (i.e similar to the software of a computer system).
- 1 ab  
2 bc  
3 cd  
4 ad  
5 ae

Answer.
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[TURN OVER]

1 3 Which one of the following statements is incorrect?

- 1 The performance objectives of the production/operations system embody what the expectations of the business are in respect of this function and what contribution they could make to the business's competitiveness or strategic direction.
- 2 Achieving the production/operations performance objectives of high quality, speed and cost and greater flexibility and dependability helps the business to exploit so-called production/operations-based advantages
- 3 Production/operations-based advantages may be seen as a result of something that the production/operations function did well and that contributes to the long-term survival of the business
- 4 A flexibility advantage, rather than a speed advantage, could be gained by the business if customers/clients receive their goods and services on the due dates
- 5 If the production/operations function of a business is able to reduce the total transaction time it takes to complete a purchase, the beneficial result could be regarded as a speed advantage

Answer:

1 4 The most important role of production and operations management is to satisfy the requirements of .

- 1 shareholders
- 2 customers.
- 3 employees
- 4 management
- 5 the public.

Answer

[TURN OVER]

- 1 5 Which **one** of the following South African factories/industries is **most** likely to utilise the JIT (just-in-time) planning and control system?
- 1 a factory in Rosslyn manufacturing concrete pots for plants
  - 2 a recruiting agency providing human resources to Eskom in Woodmead
  - 3 a crèche looking after preschoolers in Sandton
  - 4 a Toyota automotive manufacturing plant in the Ethekwini Municipality
  - 5 a nursery providing plants for the Ekurhuleni Metropolitan Parks Division

Answer
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- 1 6 Which **three** (3) of the following statements are **correct**?
- a All operations of all types of businesses produce goods or render services, or a mixture of the two, through a process of transformation
  - b Transformed input resources comprise materials, information and customers/clients.
  - c The difference between transforming and transformed input resources lies in their position in relation to the output resources
  - d A dominant transformed material resource, such as a factory plant, would be found in all types of manufacturing operations
  - e After having gone through either materials, information or customer/client processing, outputs emerge in the form of goods or services, which are generally different because of tangibility, storability, transportability and customer/client contact
- 1 abc
  - 2 bcd
  - 3 cde
  - 4 abd
  - 5 abe

Answer
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[TURN OVER]

- 17 Regarding TQM, which one of the following options is incorrect?
- 1 TQM discourages the balance between different types of quality cost
  - 2 TQM takes an organisation-wide perspective
  - 3 TQM puts customers at the forefront of quality decision-making.
  - 4 TQM holds that all parts of the organisation have the potential to contribute to quality.
  - 5 TQM is a very important concept in production and operations management.

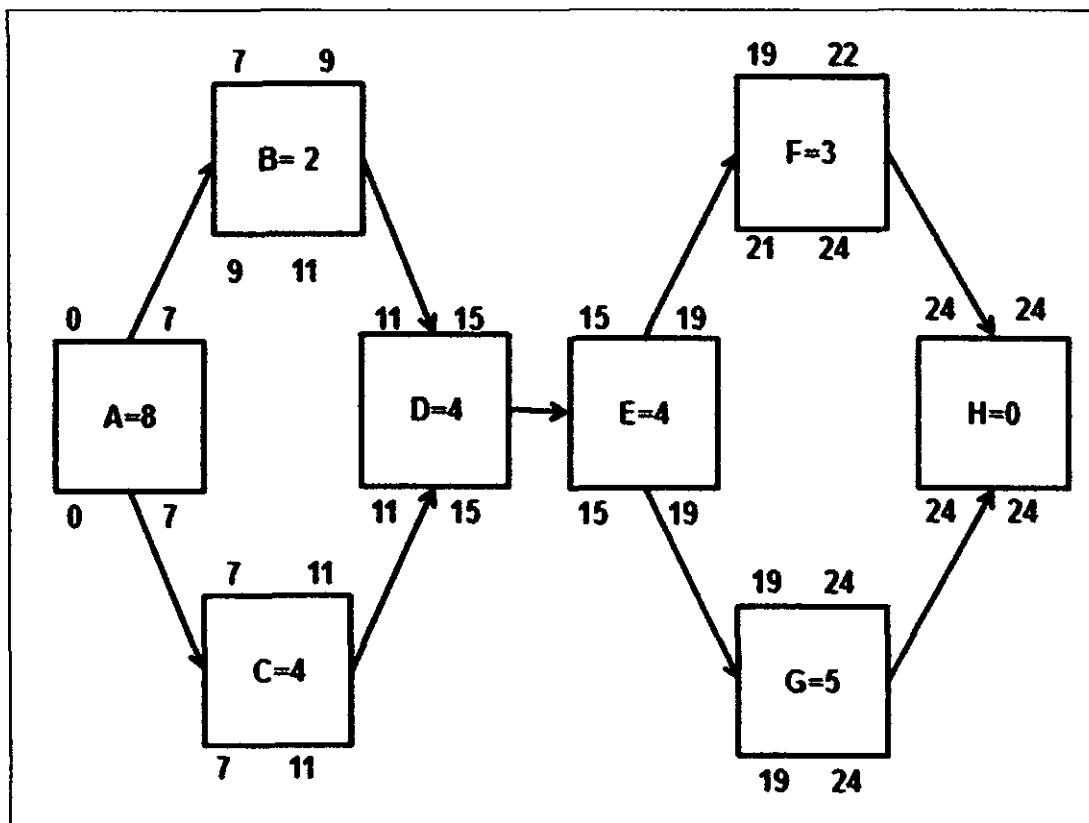
Answer
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- 18 Which of the following options does not represent a cost/costs associated with quality in operations management?
- a opportunity cost
  - b prevention cost
  - c appraisal cost
  - d internal failure cost
  - e external failure cost
- 
- 1 a
  - 2 ab
  - 3 abc
  - 4 abcd
  - 5 abcde

Answer
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[TURN OVER]

19 Identify the slack for activities B and F respectively in the diagram



- 1 B = 2; F = 3
- 2 B = 7, F = 19
- 3 B = 2, F = 2
- 4 B = 9, F = 21
- 5 B = 3, F = 2

Answer

[TURN OVER]

1 10 Which of the following approaches will be the most relevant for the production and operations manager to choose new process technology?

- a market requirements evaluation
- b operations resource assessment
- c financial evaluation
- d Gantt chart evaluation
- e assessment of the most expensive technology with the maximum value

- 1 a
- 2 ab
- 3 abc
- 4 abcd
- 5 abcde

Answer
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[10]

[TURN OVER]










[30]

**QUESTION 3**

3.1 You are the production and operations manager of your company. To compile a marketing brochure for your company, you have to explain total productive maintenance to the marketing manager. How will you explain what the goals of **total productive maintenance (TPM)** are {3 marks}? How does TPM differ from reliability-centred maintenance (RCM) {1 mark}?

(4)


[TURN OVER]

- 3.2 Millennium Logistics (Pty) Ltd is a company specialising in the relocation of companies. The following are activities for a specific relocation project.

Project: Relocation of Millennium Logistics (Pty) Ltd		
Activity	Duration (hours)	Immediate followers
A	2	B, C, D
B	8	E
C	6	E
D	2	F
E	2	G
F	4	H
G	1	H
H	1	-

Draw a CPM network and indicate only the ES (early start), EF (early finish), LS (late start) and LF (late finish) times of activities B, G and H.

(6)

[TURN OVER]












4 4 ABS (Pty) Ltd manufactures needles that are subjected to a bend test. The company uses statistical process control (SPC) and the results (measured in grams) are plotted on a chart.

4.4 1 If the process average is 26,1 and the average range is 4, what will the control limits be if the sample size is  $n = 9$ ? The factor for calculation of control limits is 0,34 for sample size  $n = 9$ .

{4}

4 4 2 Draw a chart and explain whether an investigation into an assignable cause should be undertaken, given that one sample average is 26,08.

{1}

(5)

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[TURN OVER]







