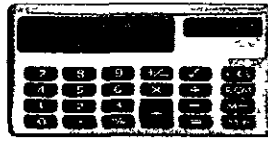


MNO3701
MAY/JUNE 2016

UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS
UNISA | 
university
of south africa

MNO3701

May/June 2016

PRODUCTION AND OPERATIONS MANAGEMENT

Duration 2 Hours

70 Marks

EXAMINERS
FIRST
SECOND
EXTERNAL

DR AS TOLMAY
MR R DIRKSE VAN SCHALKWYK
MR J VENTER

Use of a non-programmable pocket calculator is permissible

Closed book examination.

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue.

This paper consists of 24 pages

THIS IS A FILL-IN EXAMINATION PAPER AND THE WHOLE PAPER MUST BE SUBMITTED AT THE END OF THE EXAMINATION SESSION. THIS PAPER REMAINS THE PROPERTY OF THE UNIVERSITY.

Make sure the following information appears on the cover of your answer book

- your student number
- your identification number
- date of examination and examination venue

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

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 questions** and answer them for 60 marks out of 70 Sections A and B together thus 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

SECTION A

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

QUESTION 1

1 1 Production/operations improvement is important no matter how well the operation is managed. Which **one** of the following in this regard is **incorrect**?

- 1 The whole improvement process should be supported through the TQM approach
- 2 Incremental continuous improvement places a high value on creative solutions and radical rethinking of systems
- 3 The PDCA cycle, benchmarking, BPR and performance standards are terms associated with operations improvement
- 4 Four kinds of standards are used, namely competitor performance standards, absolute performance standards, historical standards and target performance standards
- 5 Quality, speed, dependability, flexibility and cost are composites of many smaller measures.

Answer

[TURN OVER]

1 2 Which one of the following statements is incorrect with regard to performance objectives?

- 1 The performance objectives of the production/operation system embody what the expectations of the business towards this function are and what contribution the function could make to the business's competitiveness or strategic direction
- 2 Achieving the production/operations performance objectives of high quality, speed, cost, greater flexibility and dependability helps the business to exploit so-called production/operations-based advantages.
- 3 Production/operations-based advantages may be seen as the result of something that the production/operations function did well and that contributes to the long-term survival of the business.
- 4 A flexibility rather than a speed advantage could be gained by the business if customers/clients receive their goods and services on the due dates as promised.
- 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 3 What term is used in planning and control to indicate the detailed timetable of what work should be done, when it should be done and where it should be done?

- 1 loading
- 2 sequencing
- 3 scheduling
- 4 monitoring and control
- 5 JIT (just-in-time)

Answer:

[TURN OVER]

- 1 4 Project management demands very specific competencies. Which **one** of the following alternatives is **not** associated with the **basic** project management processes as defined in the project management body of knowledge?
- 1 project integration and scope management
 - 2 work breakdown management and network management
 - 3 risk management and procurement management
 - 4 time management and quality management
 - 5 cost management and human resource management

Answer.

- 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 pre-schoolers in Sandton
 - 4 a Toyota automotive manufacturing plant in the Ethekwini Municipality
 - 5 a nursery providing plants for the Ekurhuleni Metropolitan Parks Division

Answer

[TURN OVER]

- 1 6 Which **three** 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, by 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

- 1 7 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

[TURN OVER]

1 8 Which of the following options is not a cost associated with quality in operations management?

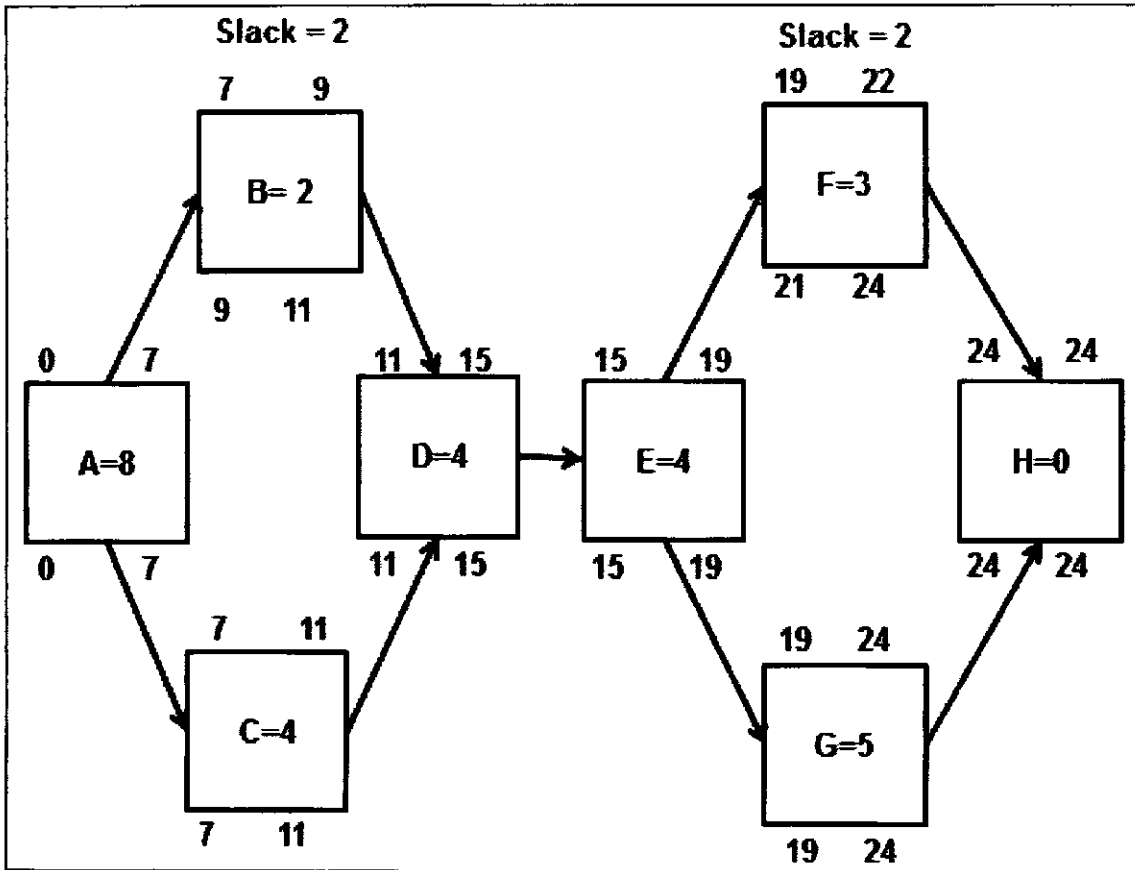
- a opportunity cost
- b prevention cost
- c appraisal cost
- d internal failure cost
- e external failure cost

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

Answer

[TURN OVER]

1.9 Which route on the following diagram represents the **critical path**?



- | | | |
|---|------------------------|------|
| 1 | A, B, D, E, F, H | = 21 |
| 2 | A, B, D, E, G, H | = 23 |
| 3 | A, C, D, E, G, H | = 25 |
| 4 | A; C; D; E, F, H | = 23 |
| 5 | A, B; C; D, E, F, G; H | = 30 |

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

[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 are of **total productive maintenance (TPM)** {3}? How does TPM differ from reliability-centred maintenance (RCM) {1}?

(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		
Activity	Duration (hours)	Immediate followers
A	8	B, C
B	2	D
C	5	D
D	6	E, F, G
E	10	H
F	5	H
G	2	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, D, and H.

(6)

[TURN OVER]

4 2 Within production and operations management, planning and control requires the reconciliation of supply and demand in terms of volumes, timing and quality. Identify and explain at least **three** (3) planning and control activities which will be found in a furniture manufacturing plant.

(3)

4 3 Production and operations management decisions are affected by globalisation. The ethical globalisation movement seeks to reconcile the globalisation trend with how it can impact on societies. Identify and explain the **four** (4) aims of ethical globalisation.

(4)

[TURN OVER]

4.4 Johnson & Johnson 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 5, what will the control limits be if the sample size $n=8$? The factor for calculation of control limits is 0,373 for sample size $n=8$.

{4}

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

{1}

(5)

--

[TURN OVER]

--

4 5 What do the “modern” operations challenges facing production/operations managers entail? How would you recommend these POM challenges or issues be dealt with effectively given ever-increasing competitive markets?

(10)

[TURN OVER]

