higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

PRODUCTION AND QUALITY CONTROL N5

(8140055)

3 August 2021 (X-paper)
09:00–12:00

This question paper consists of 5 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
PRODUCTION AND QUALITY CONTROL N5
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each section on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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QUESTION 1

Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.1–1.10) in the ANSWER BOOK.

1.1 Variable costs are directly linked to each unit produced and therefore increase with each additional product manufactured or service delivered.

1.2 Just-in-Time programmes are most appropriate for operations that manufacture products with many parts, and that have long supply chains in which materials handling and logistics play a large role.

1.3 The overarching aim of the theory of constraints (TOC) is to maintain optimum stock levels and ensure maximum stock turnover so that the business unit can maintain maximum productivity in the long term.

1.4 The aim of Six Sigma projects is to improve quantity as well as other business goals.

1.5 A Gantt chart is a simple way of visually representing the tasks of a project, their duration and their sequence of execution.

1.6 Quantity discounts are often granted by suppliers in order to encourage fewer orders.

1.7 The sum of actual expenses and standard costs is known as cost variances, which are then further analysed into quantity and price variances.

1.8 The sum of the direct material costs and the direct labour costs is known as the prime cost of the final product(s).

1.9 When calculating capacity, you need to use a measure with the appropriate units of production/service and an appropriate unit of time.

1.10 The purchasing function is not closely linked to the other business departments.

(10 × 2) **[20]**

QUESTION 2

2.1 Write down the formula for calculating the Takt time. (3)

2.2 Just-in-Time is focused on reducing waste from the supply chain and internal production process. The deployment of a Just-in-Time programme would include at least FOUR elements.

Name and discuss these FOUR elements. (4 × 3) (12)

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2.3 Copy and complete the following capacity report for a work centre in your ANSWER BOOK and state whether this work centre is balanced over the FOUR weeks or not.

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
Standard hours required	102	95	92	90
Available hours	96	96	96	88
Daily excess (deficit) in hours	2.3.1	2.3.2	2.3.3	2.3.4
Cumulative excess (deficit) in hours	2.3.5	2.3.6	2.3.7	2.3.8

(10)
[25]

QUESTION 3

3.1 List FOUR elements of lead time that are found within manufacturing companies. (4)

3.2 Name SIX performance measurements that are important for ensuring control on the factory floor.

In each case, describe a consequence of not meeting performance standards. (12)

3.3 Explain what is meant by a *make-to-order manufacturing policy*.

Give ONE advantage and ONE disadvantage of this approach. (4)
[20]

QUESTION 4

4.1 Give any FIVE advantages of distribution requirements planning. (5)

4.2 The factor-weighting method allows each factor under consideration to be rated independently for each potential site, and for each factor to be weighted according to its relative importance.

Discuss the FIVE simple steps used to calculate overall scores using the factor-weighting method. (15)
[20]

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QUESTION 5

5.1 List FIVE ways in which capacity and load can be balanced and state whether each is a capacity response or a load response. (10)

5.2 A machine operates for 100 hours per week with a utilisation of 80%. On average, the work centre takes 5% longer to complete orders than the standard time.

What is the rated capacity of the machine?

NOTE: Show ALL calculations. (5)
[15]

TOTAL: 100