higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1430**(E)**(J25)T

NATIONAL CERTIFICATE

PRODUCTION AND QUALITY CONTROL N6

(8140066)

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
PRODUCTION AND QUALITY CONTROL N6
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. Rule off across the page on completion of each question.
5. Any calculations must be clearly shown and the answers given to two decimal places.
6. Write neatly and legibly.

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QUESTION 1

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1–1.15) in the ANSWER BOOK.

1.1 The financial position of a company at a particular point in time is given by the ...

A current assets and liabilities.
B balance sheet.
C income statement.
D profit and loss account.

1.2 ... is an example of a fixed asset on a balance sheet.

A A company vehicle
B Cash in the bank
C Raw material stock
D A finished product

1.3 In a company's balance sheet, total assets must equal the sum of shareholders' equity and …

A total liabilities.
B retained earnings.
C short-term loans.
D net profit.

1.4 Assume that the direct costs involved in producing a product include raw material costs of R50 per unit and direct-labour costs of R150 per unit.

If manufacturing overheads are allocated at a rate of 20% of the direct costs, the total cost of manufacturing 100 units of the product, will be …

A R15 000.
B R20 000.
C R24 000.
D None of the abovementioned

1.5 ... are differences between actual results and planned results.

A Specifications
B Defects
C Variances
D Budgets

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1.6 A company produces 150 vehicle exhaust systems in a shift.

If the direct costs amount to R25 000 and the manufacturing costs amount to R50 000 during a shift, the process cost will be ... per exhaust system unit.

A R333
B R500
C R750
D R1 000

1.7 The cost of poor quality is given by the ...

A appraisal and failure costs.
B prevention and appraisal costs.
C internal and external failure costs.
D prevention, appraisal and failure costs.

1.8 An example of an indirect cost is …

A raw materials used for the final product.
B production waste.
C supervisors' salaries.
D production workers' wages.

1.9 A project to reduce the lead time of a process would probably start with ...

A preparing a process flow diagram.
B preparing SPC charts.
C brainstorming possible solutions.
D training the people involved.

1.10 Focusing on a very narrow, specialised part of the market is known as …

A market penetration.
B marketing.
C global marketing.
D niche marketing.

1.11 An example of an external setup activity is …

A fixing dies on a machine.
B removing completed work from a machine.
C removing dies from a machine after completion of work.
D collecting materials for the next job.

1.12 Doing the correct things right, first time, every time, is the primary objective of ...

A theory of constraints.
B total quality management.
C cost of quality.
D just-in-time manufacturing.

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1.13 A technique for generating ideas from a group of people in a structured manner is known as …

A quality circles.
B teamworking.
C brainstorming.
D continuous improvement.

1.14 The process of identifying and implementing the best practices is known as …

A bench marking.
B continuous improvement.
C total quality management.
D kaizen.

1.15 The number of new product introductions is a measure of a company's ...

A effectiveness.
B innovation.
C competitiveness.
D flexibility.

(15 × 2) **[30]**

QUESTION 2

2.1 Indicate whether the following statement is TRUE or FALSE. Choose the answer and write 'True' or 'False' next to the question number (2.1) in the ANSWER BOOK and motivate your answer.

'Slow incremental improvement is sufficient to succeed nowadays'. (4)

2.2 Name SIX common types of waste in a manufacturing company. (6)

2.3 Explain what is meant by *cellular manufacturing* and state FOUR advantages of this approach compared to the *traditional approach to factory layout*. (6)

2.4 State FOUR practical precautions that operators should take to prevent or reduce equipment failure. (4)

2.5 Explain FOUR steps that should be followed to reduce set-up time. (4)
[24]

QUESTION 3

3.1 A company keeps track of certain quality-related costs in order to calculate its overall cost of quality. The results over a three-month period are as follows:

SOURCE OF COST	COST	CATEGORY
Audits of suppliers	R40 000	(a)
Final inspection	R100 000	(b)
Implementing a quality system	R50 000	(c)
In-process inspection	R200 000	(d)
Processing waste	R250 000	(e)
Scrapping of final product	R80 000	(f)
Training of staff	R250 000	(g)
Warranty costs	R30 000	(h)

3.1.1 Categorise each of the above as a PREVENTION COST, APPRAISAL COST or FAILURE COST by writing only the answer next to the letter (a–h) in the ANSWER BOOK. (8)

3.1.2 Calculate the total of the prevention cost, appraisal cost and failure cost as indicated in QUESTION 3.1.1. (3)

3.1.3 Calculate the failure cost as a percentage of company sales, if company sales were 10 million Rands in the three-month period. (2)

3.2 3.2.1 Explain the main benefits of eliminating receiving inspections. (2)

3.2.2 State THREE basic steps that could be taken to achieve the elimination of receiving inspections. (3)

3.3 State THREE benefits of measuring the cost of poor quality. (3)

3.4 State FOUR details that are usually included in the terms of reference (project brief) of a strategic project to be led by an improvement team. (4)

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QUESTION 4

4.1 Each day a company produces 50 products and sells them for R200 each.

4.1.1 Calculate the daily throughput if the material cost is R80 per unit.

4.1.2 Calculate how the throughput will be affected if 10% of the products are rejected at final inspection and cannot be sold. Show all calculations.

(2 × 3) (6)

4.2 Distinguish between *continuous improvement* and *business process re-engineering.* (5)

4.3 Distinguish between *generic bench marking* and *competitive bench marking.*

(2 × 2) (4)

4.4 State SIX characteristics of world-class performance measures. (6)

[21]

TOTAL: 100

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