higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

PRODUCTION AND QUALITY CONTROL N6

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This marking guideline consists of 5 pages.

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QUESTION 1

1.1 False
1.2 True
1.3 True
1.4 False
1.5 True

(5 × 1) **[5]**

QUESTION 2

2.1 C
2.2 A
2.3 B
2.4 E
2.5 D

(5 × 1) **[5]**

QUESTION 3: PRODUCTION AND MANAGEMENT SYSTEMS

3.1
- Definition of the system to be studied.
- Definition of the objective function.
- Construction of mathematical model for the system.
- Evaluation of alternatives. (4)

3.2
- The general management function
- The administrative function
- The marketing function
- The purchasing function/production function
- The financial function
- The personnel function
- The external relations function (Any 5 × 1) (5)

3.3
- Production control
- Inventory control
- Quality control
- Purchasing
- Wage system
- Work study
- Maintenance (Any 6 × 1) (6)

3.4
- The environmental influences such as the economic climate, political situation and human reactions are uncontrollable.
- Production processes are sometimes so complicated that it is impossible beforehand to specify the requirements for the efficient functioning of the system. (2)

[17]

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QUESTION 4: TOTAL QUALITY MANAGEMENT (TQM)

4.1
- Appreciating a system
- Understanding variation
- Psychology
- Epistemology, the theory of knowledge (4)

4.2
- The production process may sometimes be disrupted.
- The inspector has to take the inspection apparatus with him/her.
- The use of special measuring instruments may be hindered.
- It demands the employment of well-trained inspectors. (4)

4.3
- It can either be tested with a snap gauge to determine whether or not the diameter falls within the upper and lower tolerance limits.✓✓
- The actual diameter can be measured with the aid of a suitable instrument, such as a micrometre.✓✓ (2 × 2) (4)

4.4
- The accuracy of inspection may decrease after multiple repetitions.
- Inspection can be very expensive.
- Losses due to defective products may be very small in some cases.
- The inspection may be of such a nature that the articles may deteriorate because of the inspection or may even be destroyed.
- All the extra handling may decrease the quality of the product. (5)

[17]

QUESTION 5: JUST-IN-TIME (JIT)

5.1
- Just-in-time is defined as the production of the minimum number of different units✓
- in the smallest possible quantities✓
- at the latest possible time✓
- to eliminate waste.✓ (4)

5.2
- Reduction in set-up time.
- Utilisation of the formal preventative maintenance program.
- Utilisation of quality circles.
- Utilisation of cellular manufacturing techniques.
- Cross-training of employees.
- Quality certification of suppliers.
- Reduction in vendor lead time.
- Reduction in lot sizes.
- Sole sourcing.
- Presence of the one who championed the cause of JIT within the firm.

(Any 5 × 1) (5)

5.3 A value-added analysis-added analysis should be performed.✓✓ (1 × 2) (2)

5.4
- Internal setup: Performed while the machine is off.✓✓
- External setup: Performed while the machine is producing.✓✓ (2 × 2) (4)

5.5
- Master schedule
- Material requirements planning
- Shop floor control (3)

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QUESTION 6: THEORY OF CONSTRAINTS (TOC)

6.1 The fundamental thesis of TOC is that constraints establish the limits of performance for any system.✓✓ (1 × 2) (2)

6.2
- Drum
- Buffer
- Rope (3)

6.3
- The actual lead time for certain product lines had been cut to half.
- Due-date shipment performance had improved.
- Shipment levels increased to their highest level in the company's history.
- Personnel remained near the low post-layoff levels.
- Return on equity increased and cash flow increased to 60% more than the operating plan. (5)

6.4
- Reductions in supply chain inventories.
- Increased responsiveness and flexibility.
- Improved on-time delivery performance to the final customer.
- Enhanced value creation for customers.
- Improved profitability/throughput for the supply chain.
- Reductions in total assets invested in the system.
- Simplification of relationships as objectives are clarified.
- Reductions in cost across the supply chain.
- Improved competitive position. (Any 5 × 1) (5)

6.5
- Subcontracting costs
- Commissions paid to salespeople
- Customs duties
- Transportation, if the company does not have its own transport (4)

[19]

QUESTION 7: BUSINESS PROCESS RE-ENGINEERING (BPR), PERFORMANCE MEASUREMENT

7.1
- Resistance to change
- Personal view of change (2)

7.2 Measurements must:
- be reliable
- be valid
- be linked to enterprise objectives
- concentrate on critical points (4)

7.3
- They are control points for key activities.
- They must be selected carefully according to time requirements.
- The health balance between quantifiable and non-quantifiable strategic control points is essential. (3)

7.4
- Physical standards
- Cost standards
- Capital standards
- Typical income standards
- Programme standards
- Intangible standards
- Verifiable objectives (7)

7.5
- Resistance to control
- Unachievable standards
- Control can in some cases lead to fraud (3)

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TOTAL: 100

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