

Design & Technology

A-Level

Quality Monitoring Systems

Materials required for questions

- Pencil
- Rubber

- Calculator

Instructions

- Use black ink or ball-point pen
- Try answer all questions
- Use the space provided to answer questions
- Calculators can be used if necessary
- Use a cross in the box to mark you answer



Advice

- Marks for each question are in brackets
- Read each question fully
- Try to answer every question
- Don't spend too much time on one question

Good luck!

Q1. What is not part of quality control?

A Checking for accuracy

☐

B Checking design against British standards

☐

C Checking for safety

☐

Q2. Who doesn't conduct quality assurance checks?

A FSC

☐

B BSI

☐

C ISO

☐

Q3. What quality monitoring system can be described as reactive?

A Quality control

☐

B Quality assurance

☐

Q4. What quality monitoring system is used to find defects?

A Quality control

☐

B Quality assurance

☐

Q5. What can excessively tight tolerances lead to?

A Increased costs

☐

B Having to test each item

☐

C Reduced item rejection

☐

Q6. What is not a disadvantage of quality control?

A Can be expensive

☐

B Can slow down production

☐

C Increases cost in development of product

☐

Q7. What is not an advantage of TQM?

A Shorter production times

☐

B Reduces development costs

☐

C Improves business reputation

☐

Q8. What is not a part of TQM?

A Integrated system

☐

B Total employee involvement

☐

C Good design integration

☐

Q9. The use of total quality management (TQM) strategies affects many areas within a business.

Evaluate the impact on employees of using total quality management (TQM) strategies. **(10 marks)**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

Q10. One quality control test that would be used during volume production of the sprocket and crank arm is to cheque dimensional accuracy.

Outline three further quality control checks that could be carried out on the assembled sprocket and crank arm. (3 marks)

1. _____

2. _____

3. _____

Q11. Evaluate the cost implications to a business of running effective quality control systems (7 marks)

Q12. Outline the role of the international standards organisation (ISO) (3 marks)

Answers

Q1. B

Q2. A

Q3. A

Q4. A

Q5. A

Q6. C

Q7. B

Q8. C

Q9.

Advantages

- Employees in departments have a supplier–customer relationship with other departments/improved communications. (1)
- Employees are engaged in continuous improvement/encouraged to suggest improvements / take initiatives/simplify tasks. (1)
- Employees are responsible for the quality of their own work. (1)
- Employees are placed in teams. (1)
- Improved worker moral/workers feel valued/happy/good job satisfaction/pride. (1)
- Less employee absence. (1)
- Employees are more motivated (1)
- Employees are more productive/more efficient. (1)
- Employees are empowered to make decisions/given more responsibility. (1)
- Employees have improved health & safety/working conditions. (1)
- Employees have increased job security. (1)
- Opportunities for further training/increased skill levels. (1)
- Opportunities for internal promotion. (1)
- Employees receive competitive pay/improved standard of living (1)

Disadvantages

- Some employees may be put under additional stress/pressure/expected to work harder. (1)
- Some employees are reluctant to embrace changes. (1)
- Some may leave the business/become unemployed. (1)

Q10.

- Check material quality (with destructive/non-destructive tests), eg . strength/toughness/ hardness/durability/corrosion resistant/weight (1)
- Check function/does it work (freely rotate/smooth running chain) (1)
- Check that parts fit together (1)
- Check surface finish (scratches /dents/dirt/blemishes) (1)
- Check sharp corners/edges (1)
- Check casting quality (flaws /cracks/flashing/holes/ bubbles/miss-forms/broken parts) (1)
- Check for correct assembly (location/missing components tightness of screws) (1)
- Check threads are fully cut /formed (1)
- Check quality of decals/printing/position (1)

Q11.

Negatives

- Running QC systems costs extra money/reduces profits. (1)
- Increases selling price/price themselves out of the market / competitor products are cheaper. (1)
- Set up costs eg. Equipment/training costs. (1)
- Running costs eg. Labour/energy/maintenance/destructive testing/etc. (1)
- Slower production rate/time consuming/time needed
- to check every component/less product manufactured/sold. (1)

Positives

- High quality/more reliable products produced. (1)

- Good reputation/quality marks gained (BSI, ISO4000, etc).
- (1)
- Leading to increased profits /higher value product /
- increased sales/money saved. (1)
- Less returned products/replacement products supplied. (1)
- Sampling/computer driven/automated monitoring
- systems are cheaper to run. (1)
- Increased QC checks will reduce the waste incurred
- when faulty goods are further processed/faulty goods are disposed of/leads to increased productivity. (1)

Q12.

- Sets international standards for product testing (1)
- Sets company standards/quality assurance such as
- ISO9000 family (1)
- National standards are based on ISO standards (1)/
- BSI standards are created collaboratively with ISO (1)
- Provides compatibility of consumer products between
- countries throughout the world (1)
- Sets the standards which, if met, ensure products are
- safe/fit for purpose (1)
- Technical standards are often applied to products
- globally (1)
- Produces technical reports, guides and specialist
- publications to communicate quality standards (1)