Design & Technology
A-Level

Modelling the costing of projects to achieve optimum outcome
Multiple Choice

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. A smoke alarm needs either four 1.5 volt alkaline batteries or five 1.2 volt re-chargeable batteries to work.
Complete Table 1 to show the total costs to the customer of five battery changes or five re-charges.
This information will be used to decide a suitable way to power the device **(2 marks)** – AQA 2019

	Alkaline batteries	Re-chargeable batteries
Cost of batteries and charger if required	£2.45 for 4 batteries	£17.00 for 5 batteries and a charger
Cost per re-charge of 5 batteries	£0	£0.03 for 5 batteries to be re-charged
Cost to customer after 5 battery changes or 5 re-charges		

Q2. Explain two advantages in terms of cost of using an automated closed loop control system, compared to an open loop control system, in production.
(2 marks) – edexcel 2015

1.

2.

Q3. Evaluate the cost implications to a business of running effective quality control systems. **(6 marks)** – edexcel 2015

Q4. When planning for production there are areas that need to be considered such as the equipment available for scale of production. Name 2 other areas that need to be considered **(2 marks)** – self

1.

2.

Q5. Name 3 costs that need to be considered when modelling the cost of a project **(3 marks)** – self

1.

2. _____

3. _____

Answers

Q1.

	Alkaline batteries	Re-chargeable batteries
Cost of batteries and charger if required	£2.45 for 4 batteries	£17.00 for 5 batteries and a charger
Cost per re-charge of 5 batteries	£0	£0.03 for 5 batteries to be re-charged
Cost to customer after 5 battery changes or 5 re-charges	£ 2.45 x 5 = £12.25	£17.00 plus £0.03 x 5 = £17.15

Award 1 mark for £12.25
Award 1 mark for correct answer £17.15

Q2.

- Reduced labour/wages costs
- Increased/faster productivity/cost saving

Q3.

Any six of the following but must include one from each to gain full marks:

Negatives

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

Positives

6. High quality / more reliable products produced. (1)
7. Good reputation/quality marks gained (BSI, ISO4000, etc). (1)

8. Leading to increased profits /higher value product / increased sales / money saved. (1)
9. Less returned products/ replacement products supplied. (1)
10.Sampling / computer driven /automated monitoring systems are cheaper to run.(1)
11.Increased QC checks will reduce the waste incurred when faulty goods are further processed/ faulty goods are disposed of / leads to increased productivity. (1)
Accept points stated in reverse, but do not award each twice eg increased sales due to high quality reputation / reduced sales due to poor quality reputation (1)
(6 x 1)

Q4.

- Material costs (quality of product)
- Labour/Wages (automation vs high skilled)
- Premises

Do not accept Equipment available for scale of production

Q5.

- Start-up costs (legal/insurance/stock/advertising/permits/wages)
- Sales (predict sales)
- Expenses (wages/advertising/vehicles/accounting/legal fees)
- Cost of goods (COGS) (materials/packaging/transport/commission)
- Cash flow (tell you how much cash your expecting/help make decisions)