DTBase©

Design & Technology
Eduqas GCSE

Textiles: scales of production

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
- For the multiple choice questions, circle your 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. Which scale of production is used for wedding dresses, bespoke suits and theatre costumes?

A Job production

B Batch production

C Mass production

Q2. Which scale of production is used for seasonal fashion collections and school uniforms in sizes?

A Mass production

B Batch production

C Job production

Q3. Which of these is a disadvantage of mass production?

A It is slow

B Every product is unique

C High set-up costs and it is inflexible

Q4. How does the progressive bundle system (PBS) work?

A Cut pieces are tied into bundles by operation and each bundle moves from one operator to the next

B One person makes the whole product to a client's exact requirements

C A small team makes the whole product and shares the tasks

Q5. Which of these is a disadvantage of line production?

A Workers need many different skills

B A hold up at one station stops the line

C It cannot make identical products

Q6. How does cell production work?

A Each worker does one task in order along a line

B Bundles of cut pieces move between operators

C A small team works in a cell and makes the whole product, sharing tasks

Q7. Products are manufactured commercially in different quantities. Identify which scale of production is being described:

Q7a. A continuous run of identical products. **(1 mark)**

Q7b. A small product run of identical products. **(1 mark)**

Q7c. A unique product made for one person. **(1 mark)**

Q8. Seasonal products are usually manufactured using batch production. Analyse the benefits of using batch production for seasonal products. **(4 marks)**

Q9. Tents are manufactured in batches. Explain two reasons for manufacturing the tents in batches. **(6 marks)**

Q10. A child's printed t-shirt is manufactured in China in batches of 60,000 and sold to a clothing company in the UK. The cotton yarn to make the fabric costs £0.25, making the t-shirt costs £1.08 and the transfer printing costs £0.35 per t-shirt.

Q10a. Calculate how much a batch order of 60,000 t-shirts would cost the manufacturer to make. Show all workings. **(1 mark)**

Q10b. The manufacturer sells each t-shirt for £2.50. Calculate how much money the manufacturer receives if they sell 80% of the 60,000 t-shirts. Show all workings. **(2 marks)**

Q10c. Using only your answers to Q10a and Q10b, calculate how much profit the manufacturer would make. Show all workings. **(2 marks)**

Q11. A manufacturer of embroidered badges owns 25 specialist machines. Each badge takes 5 minutes to make. Calculate how many badges the manufacturer makes in an 8-hour shift using all 25 machines. Show all workings. **(5 marks)**

Q12. A tree shape for a children's fabric book is cut from fleece fabric in a batch of 1000. Name two different techniques that could be used to batch produce the tree. Explain one advantage of using each technique. **(6 marks)**

Q13. A t-shirt was made in a factory that uses the manufacturing system of cell production. Evaluate how cell production benefits the workforce. **(6 marks)**

Answers

Q1. A
Q2. B
Q3. C
Q4. A
Q5. B
Q6. C

Q7a.

Mass production (1). Also accept continuous production or repetitive flow.

Q7b.

Batch production (1).

Q7c.

One-off production (1). Also accept bespoke or job (jobbing) production.

Q8.

A maximum of 2 marks for identifying suitable benefits. Full marks for two benefits that are justified and related to batch production. Credit a negative point if relevant. Benefits include:

- Allows smaller runs of a product, or longer runs if the product proves popular
- The products made are identical
- Changes can be made fairly easily to meet the needs of a larger audience and seasonal demand
- Cheaper than making single items, although more expensive than mass production
- Reduces the business risk of making just one product
- The workforce tends to be skilled in one area, which helps efficient production and quality control
- Machines can be adapted to demand and to changes in the product
- Materials can be bought in bulk, reducing costs

Q9.

Two reasons (1 mark each), each with two linked justifications (1) + (1). For example:

- Once the batch is made the production line can be changed (1), so other products can be made (1), keeping staff employed, machines in use and profits coming in (1)
- Specific orders from retailers can be met (1), so the manufacturer does not have to hold lots of stock (1), so money is not tied up in stock (1)
- Batch production can respond quickly to customers' demands (1), so new orders can be turned around quickly (1), and supplies reach retailers when ordered (1)
- Different materials and colours can be swapped in and out (1), so different trends and fashions can be met (1), so sales and profits keep coming in (1)

Q10a.

£0.25 + £1.08 + £0.35 = £1.68; £1.68 × 60,000 = £100,800 (1).

Q10b.

60,000 ÷ 100 × 80 = 48,000 t-shirts sold (1). 48,000 × £2.50 = £120,000 (1).

Q10c.

£120,000 − £100,800 (1) = £19,200 (1). Credit any appropriate method.

Q11.

- 1 hour = 60 minutes (1)
- 8 × 60 = 480 minutes (1)
- 480 ÷ 5 = 96 badges per machine (1)
- 96 × 25 (1)
- = 2,400 badges in 8 hours (1)

Credit any appropriate method.

Q12.

Two techniques (1 mark each), each with two linked justifications (1) + (1). For example:

- CAM or laser cutter (1), which can repeat cut (1), making identical parts quickly and accurately (1)
- Die cutting or stamping (1), which cuts all sides at the same time (1), making the process more efficient (1)
- Hand or rotary cutting (1), with layers built up or folded over each other (1), so many parts can be cut at once (1)

Q13. (6 marks)

Advantages for the workforce

- Workers work together, improving communication and reducing the confusion common in large organisations
- Responsibilities are shared equally in small teams, so everyone feels valued
- Less monotonous than an assembly line
- Workers are multi-skilled and paid more, which increases motivation and quality
- Multi-skilled workers are more adaptable to the future needs of the business
- Teams are responsible for all stages, including quality control, giving shared ownership
- Workers receive training so they have a range of skills

Disadvantages for the workforce

- Team members may not get on, causing delays and lower pay if paid piece rates
- Absence causes delays and backlogs, and resentment as others pick up the extra work
- Pressure to meet increased output targets can leave workers feeling undervalued
- Backlogs from less efficient cells increase pressure and targets (and bonuses) may be missed

Band	Marks	Descriptor
3	5 to 6	A coherent answer with detailed, relevant knowledge and understanding of how cell production benefits the workforce. Relevant examples and well-developed, substantiated judgements in a logically structured response.
2	3 to 4	Some coherence, with partial knowledge and understanding. Mostly relevant examples and partly substantiated judgements in a generally well-structured response.
1	1 to 2	Basic knowledge and understanding. Limited relevant examples or judgements, with little structure.
0	0	Incorrect or irrelevant answers.