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Design & Technology
AQA A-Level

The use of a design process

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 of the following is often used during the early stages of a design process to explore themes and ideas visually?

A Product testing

B Mood board

C Specification sheet

Q2. What is the main purpose of a design specification?

A To model the final design

B To plan the manufacturing process

C To set out the key requirements and constraints of a product

Q3. At which stage of the design process are alternative ideas explored and sketched out?

A Ideas generation

B Evaluation

C Planning

Q4. What is the aim of modelling in the design process?

A To illustrate the design's aesthetics only

B To test and develop aspects of a design before final production

C To create a full-sized working prototype immediately

Q5. Describe three key characteristics of an effective design specification **(3 marks)**

Q6. Outline the ways a design team can reduce the time from idea conception to product release **(6 marks)**

Answers

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

Q5.

- Objective: A document that can be easily interpreted by all without subjectivity.
- Formed from research: A document which consists of points key characteristics gathered from research.
- Gives a clear list of criteria for evaluation.
- A document that is flexible/a working document that can be updated/reflected upon during the whole design process.
- A document that includes measurable criteria to assess design suitability.
- A document that addresses client needs
- Justifies reason for points included on the specification
- Inclusion of specific quantitative data
- Comprehensive list of criteria

Q6.

- Constant reference to a detailed specification ensures concepts are appropriate.
- Focus groups and effective primary research ensures that concepts meet consumer demands.
- Rapid prototyping using 3D printing techniques allows clients and consumers to visualise concepts and make adjustments early on in the development process.
- Use of online shared documents to enable collaboration between workers.
- The use of concurrent engineering to ensure all members of the team are involved throughout the development will reduce lead time as errors can be found earlier.
- The use of critical path analysis allows the team to predict log jams and allocate staffing accordingly to prevent delays, this also ensures that all processes are started as promptly and early as possible.

- The use of a project management system to check the progress of all elements at regular intervals and redistribute staffing accordingly increases efficiency, (SCRUM).
- The use of a project management system to analyse all processes and reduce errors, (Six sigma).
- The use of virtual modelling of concepts prior to production reduces monetary investment and time in production processes that may be incorrect.