

How to use this booklet.

Break your revision up into small chunks*

Session One (15mins):

Read your notes on a topic, e.g. Printing

Session Two (15mins):

Make some notes about this topic, sketches and brainstorm

Session Three (15mins):

Answer a set of questions in this booklet, writing the answers as you would in the exam.

Repeat session three until all questions for the topic are answered.

***These sessions do not have to be done back to back. They can each be done on consecutive days.**

If you get stuck. If you don't know the answer to a question, email your teacher.

Plastics and Plastic Forming.

Make sure...

- You know the difference between Thermo and Thermosetting plastics
- You know the properties and uses of all the plastics in the revision booklet.
- You can select a plastic and say what makes it suitable for any plastic product.
- You can identify if a product is injection moulded, vac formed, strip heated or blow moulded
- You know how the plastic shaping machines work and can draw a diagram to explain them.
- You understand the environmental impact of using plastics.

Question Set 1.

1. What are the 2 different families of plastic called? (2)
2. Which type of plastic does not soften when heated? (1)
3. Name a suitable plastic to manufacture a blister packaged toy and give two reasons why it is suitable (3)
4. State 3 reasons why acrylic is used to manufacture a CD case. (3)
5. Give two reasons why drain pipes are made with PVC (2)

Question Set 2.

1. State 2 properties required for the case of a MP3 player. (2)
2. Name two polymers suitable for manufacturing squeeze bottles (2)
3. When making a vacuum forming mould, the sides of mould must slope inwards. Explain the purpose of this slope (2)
4. Name 3 suitable materials to make a vac form mould out of (1)
5. Give two reasons why vacuum forming would not be suitable for the manufacture of a hairdryer (2)

Question Set 3.

1. Name the main stages of the vacuum forming process. Sketches can be used (5)
2. Explain the 3 visual clues that suggest a product has been injection moulded. (6)
3. Why is the polymer added to the injection moulding machine as granules? (1).
4. Name a suitable material for an injection moulding mould. (1)
5. Name the main stages of the injection moulding process. Sketches can be used. (5)

Question Set 4.

1. Which plastic would be used for blow moulded coke bottles? (1)
2. Plastic is said to be a non-renewable resource, why is this? (2)
3. Describe 2 reasons why plastics are considered bad for the environment. (4)
4. Plastics are non-biodegradable, what does that mean? (1)
5. PVC is used for self adhesive lettering for the side of vans. State 2 properties that make PVC suitable for such an application. (2)

Question Set 5.

1. Using sketches describe the blow moulding process. (5)
2. State one product that can be manufactured using a line bender. (1)
3. Name 2 hazards associated with using a line bender (2)
4. Which plastic forming processes are not suitable for 'one off' production? (2)
5. State 2 plastic products that cannot be made with a vacuum former. (2)

Keywords: Polystyrene, expanded polystyrene, polypropylene, PVC, PET, LDPE, HDPE, Acrylic, Injection moulding: Hopper, Archimedean screw, heaters, ejector pins, mould, sprue, split line. Vacuum Forming: Heater, mould, draft angle. Blow moulding: Parison, Preform, mould. Line bending. Jig.

Card types

You must...

- Know the names and properties of the main card types. (*see revision guide*)
- Be able to suggest a suitable card for a range of different packaging and be able to justify your choices.

Question Set 6

1. State 2 cards suitable for the manufacture of a frozen pizza box? (2)
2. Explain 1 reason why foil lined board is often used to package make-up and perfume. (2)
3. Give 2 reasons why corrugated card is used for takeaway pizza boxes? (2)
4. Describe the structure of corrugated card. (2)
5. Give 2 reasons why corrugated card is used to package televisions. (2)

Question Set 7

1. Explain why McDonalds use solid white board rather than white lined chipboard for their apple pie boxes (2)
2. Give 2 reasons why Pizza Hut menus are laminated. (2)
3. Give 2 reasons why chipboard is cheaper to manufacture than solid white board. (2)
4. What card would you use to manufacture a box for the Monopoly board game (1)
5. What is the industrial method used to cut and crease card (1)

Question Set 8

1. Describe the structure of white lined chipboard. (2)
2. Discuss the environmental issues associated with using foil lined board (2)
3. When making a model of your packaging for your coursework, name 2 types of glue that would be suitable for gluing paper to card. (2)
4. What are the 3 main materials used in a Tetra Pak carton? (3)
5. Why is it impossible to recycle a Tetra Pak drinks carton? (2)
6. Which card is the cheapest card to produce, but cannot be printed on in full colour? (1)

Question Set 9

1. Which card can be printed on in full colour on both sides? (1)
2. Which card can be utilised for make-up and food packaging because of its water resistance? (1)
3. What is the name of the wood/water mixture used to make paper? (1)
4. Name 3 costs associated the manufacture of an Easter egg box. (3)
5. State 2 uses for tracing paper. (2)

Keywords: Solid white board, chipboard, white lined chipboard, foil lined board, Folding boxboard, cartridge paper, tracing paper, bleached pulp, unbleached pulp, laminate, Die cut. Tetra Pak (*LDPE, Aluminium foil and paper*)

Printing Processes.

Question set 10.

1. Name a suitable printing processes for printing a T-shirt. (1)
2. Which printing process would be use on a frozen pizza box? Explain the reason for your choice. (2)
3. Using a sketch, describe the printing plate used in flexography (3)
4. Using a sketch explain the concept of screen printing (3)
5. What are the main steps of manufacturing the printing plate for lithography? (4)

Question set 11.

1. How does the printing plate for Gravure differ from that of flexography? (2)
2. Why is Gravure printing higher quality than lithography? (2)
3. What makes flexography suitable for printing on slightly uneven surfaces? (1)
4. Which printing process would be used to print a letter home to your parents from school? (1)
5. Explain why lithography is more suitable than flexography for printing a cereal box (4).

Question set 12.

1. Describe the printing plate used for lithography. (3)
2. Why is lithography not suitable to print your prototype for your coursework? (2)
3. Describe the limitations of the screen printing processes. (2)
4. What is meant by the term 'relief printing'? (1)
5. What makes Photocopying suitable for one off or batch manufacture? (2)

Question set 13.

1. Explain one reason why a publisher might use 'hot foil blocking' on the cover of a book. (2)
2. What are the four colours needed for a full colour print (1)
3. Sketch and label a diagram of the offset lithographic machine (4)
4. Describe the printing plate used in Gravure (3)
5. Name 2 different media that can be used to add colour to a sketch (not felt tips) (2)

Question set 14.

1. Name 2 quality control checks carried out on a printed product. (2)
2. What are registration marks? (2)
3. What is spot varnishing? (2)
4. Describe 2 reasons why a Pizza hut menu is laminated (4)
5. Give 2 reasons the school uses a photocopier, rather than an inkjet printer to print letters to send home to parents (2)

Question set 15.

1. Name the process used to bind a magazine together after printing. (1)
2. Name a strong way of binding a book together (1)
3. Name 2 suitable methods to bind a document of 20 pages produced on the school photocopier. (2)
4. Describe one reason why a publisher might use 'hard binding' on one of their books. (2)

Keywords:

Gravure: copper plate, etched.

Offset Lithography: printing plate, UV light, transparency, aluminium plate, fixative, oil and water.

Flexography: relief printing.

Screen printing: silk screen, squeegee

Photocopying: Laser, Drum, Toner.

Print Finishing Techniques: Laminating, varnishing, hot foil blocking, die cutting.

Quality control: registration marks, crop marks, colour opacity check,

CMYK: Cyan, Magenta, Yellow, Black.

Spiral/comb binding, saddle-wire stitching, perfect binding, hardbound/casebound.

Woods and metals.**Question set 16.**

1. What is the difference between ferrous and non ferrous metals?
2. Name 2 properties that make aluminium suitable for manufacturing a coke can. (2)
3. Name one advantage and one disadvantage of using aluminium for cans over steel. (4)
4. Why does aluminium not rust? (1)
5. How can a sign post made of steel be treated to stop it rusting when used outside? (1)

Question set 17.

1. Why are softwoods often cheaper to buy than hardwoods? (1)
2. Pine is often used to make joists for roofs and telegraph poles. What makes pine ideal for this? (2)
3. How can pine be treated to stop it rotting when used outside? (1)
4. Explain one property of balsa wood that makes it suitable for model making. (2)
5. Explain one property of jelutong that makes it suitable for model making. (2)

Question set 18.

1. State 2 advantages of using glass for a fizzy drinks bottle, rather than plastic (2)
2. Explain one reason why plastic is better than glass for a fizzy drinks bottle (2)
3. Why is Aluminium more expensive than Steel? (2)
4. Give 2 reasons why a baked bean tin, which is made of steel, is covered in a thin layer of tin? (2)
5. Is tin a ferrous or non-ferrous metal? (1)

Keywords

Softwood: Pine

Hardwood: Balsa, Jelutong

Ferrous metal: Steel, rust, paint.

Non-ferrous metal: Aluminium, Tin, rust

Scales of Production

Question set 19.

1. What is meant by the term 'bespoke production'? (1)
2. Give an example of a product that is batch produced (1)
3. What scale of production is typically associated with injection moulding (1)
4. Describe 'continual flow production' (2)
5. Why is lithography only suitable for mass production? (2)
6. Which scale of production has the highest labour cost for each product made? (1)

Keywords:

Scales of Production: One-off, Batch, Mass production.

Glues and adhesives

Question set 20.

1. Which adhesive is most suitable for gluing two pieces of wood together? (1)
2. State 2 safety rules to follow when using Tensol cement to glue acrylic (2)
3. How does Tensol cement work? (2)
4. What adhesive is a quick way to bond an aluminium hook onto a piece of wood. (1)
5. What glue would be used to glue together an Airfix kit? (1)

Question set 21.

1. How does polystyrene cement work? (2)
2. Name one disadvantage of using PVA glue to joint wood together. (1)
3. Describe how to prepare Epoxy Resin for use (2)
4. What does the 'flammable' safety sign look like? (1)
5. What does the 'harmful' safety sign on glue look like? (1)

Keywords:

Epoxy resin, polystyrene cement, Tensol cement, Polyvinyl acetate (PVA) glue

CAD/CAM

Question set 22.

1. What does the acronym CAD/CAM stand for? (2)
2. What does EPOS stand for? (1)
3. State 2 advantages of using CAD to design a product over hand drawn methods (2)
4. Explain 2 advantages to the manufacturer of using CAM to manufacture a product. (4)
5. Explain 2 disadvantages to the work force of manufacturing using CAM (4)

Question set 23.

1. Give 2 examples of an Electronics Point of sale (EPOS)? (2)
2. Explain one advantage to the retailer of using an EPOS. (2)
3. Explain 2 advantages to the consumer of using an EPOS (4)
4. How does using email help communications between designers and manufactures? (2)
5. State 2 ways in which the internet is used to help 'market' a product. (2)

Question set 24.

1. What is '2D drafting'? (1)
2. Explain one advantage of a designer drawing a plan for a house on a PC, rather than on paper (2)
3. What does DTP stand for?
4. How has DTP changed how magazines and newspapers are made? (4)
5. Name one piece of software used to digitally manipulate images (1)

Question set 25.

1. What is meant by the term 'virtual reality modelling'? (1)
2. Explain 2 advantages of creating a virtual reality model of a product you are designing. (4)
3. State 2 advantages of using a laser cutter to shape acrylic rather than doing it by hand (2)
4. A laser cutter can cut materials or engrave them. What does engrave mean? (1)
5. State one commercial use for a vinyl cutter (1)

Keywords:

CAD, CAM, EPOS, Internet sales and marketing, email.

Photoshop for image manipulation, Desktop Publishing (DTP), 2D Drafting, Virtual Reality Modelling and Testing.

Laser Cutter, Vinyl Cutter.

Digital Media and New Technology

Question set 26.

1. State one practical use for Bluetooth technology. (1)
2. Bluetooth sends data wirelessly. State 2 limitations of sending data via Bluetooth. (2)
3. State two advantages that digital TV has over the old analogue system. (2)
4. Why does HDTV give a better picture quality than Standard Definition? (2)
5. State one advantage and one disadvantage for using a 'commercial digital printing' to print posters.

Question set 27.

1. State one product that may be made by a 'large format' digital printer. (1)
2. What does RFID stand for?
3. State 2 commercial uses for an RFID tag. (2)
4. Describe how RFID tags are used in factories. (3)
5. Explain a concern that some people have with the use of RFID tags (2)

Keywords:

Bluetooth, wireless, (HD)TV, Digital TV, Commercial Digital Printing, Large Format Printing. Radio Frequency Identification Tags (RFID)

Smart Materials and Composite Materials**Question set 28.**

1. Describe how to make a shape with polymorph. (3)
2. Describe 2 advantages that LCD screens have over e-paper. (4)
3. Describe 2 disadvantages that LCD screens have over e-paper. (4)
4. State one use for a transdermal drug patch. (1)
5. Describe how a transdermal drug patch works. (3)

Question set 29.

1. Thermocolour film is a plastic that changes colour with heat. State two applications for thermocolour film. (2)
2. What is meant by the term 'composite material'? (1)
3. What are the two main materials that make up carbon fibre (2)
4. Give two reasons why carbon fibre is used for racing cars, rather than metal (2)
5. What are the 2 main materials that make MDF?

Question set 30.

1. State one hazard of working with MDF. (1)
2. State two uses of MDF. (2)
3. Give two reasons why MDF is more suitable for making baseboard for an architectural model, than pine. (2)
4. Give one disadvantage of using MDF to make furniture over pine (1)
5. Give one pro and con to the environment of using MDF (2)

Sustainability

Question set 31.

1. Explain an advantage and disadvantage to the consumer of planned obsolescence. (4)
2. Why do companies design their products to fail and need replacing after a certain amount of time? (4)
3. Give 2 examples of planned obsolescence. (2)
4. Discuss the environmental issues surrounding planned obsolescence (4)
5. How does planned obsolescence affect the economy? (4).

Question set 32

1. Many companies, such as Nike, manufacture their products in LEDCs, less economically developed countries. Explain 2 advantages to the manufacturer of manufacturing their products in LEDCs. (4)
2. State 2 advantages to people in LEDCs of large companies open factories there. (2)
3. State 2 disadvantages to people in LEDCs of large companies open factories there. (2)
4. What does MEDC stand for?
5. State one advantage and one disadvantage to us in the UK of having our products manufactured in a LEDC (2)

Question set 33.

1. Explain one example of how a product design has changed to not cause offence to another culture. (2).
2. Using a product as an example. Explain how the packaging for a product could be reduced to make it more environmentally friendly. (2)
3. Local councils collect waste from households to recycle. Explain 2 ways in which recycling benefits the environment. (4)
4. Explain two ways in which a designer can make a mobile phone more environmentally friendly. (4)
5. Products can be made of a 'renewable' resource. What is meant by the term 'renewable material'? (1)

Question set 34.

1. Describe one way that energy can be recovered from waste material (2)
2. Describe one advantage and one disadvantage of using wind turbines to generate energy (4)
3. Solar panels can convert sunlight into electricity. Describe one advantage and one disadvantage of using this method to generate electricity. (4)
4. What is meant by the term 'Biomass' (1)
5. Describe one concern that people around the world have with using biomass to make biofuel for transportation. (2)

Question set 35.

1. What is meant by the term 'global warming' (3)
2. What is meant by the term 'greenhouse gas' (2)
3. What was the Kyoto Protocol? (2)
4. State one example of a LEDC (1)
5. State two examples of a MEDC (2)

Keywords:

Planned obsolescence (function/fashion) . Offshore manufacture, Multinational company, MEDC, LEDC, tolerance of other cultures.

Environmentally friendly, waste, landfill, recycle, reduce, reuse, recover.

Wind energy, wind turbine, wind farm, solar energy, solar cell, photovoltaic cells, biomass, biofuel.

Global warming, Greenhouse gas, the Kyoto Protocol.

Model Making.**Question set 36.**

1. What is meant by the term 'prototype'? (2)
2. Designers often make 'block models' of products that they are designing. What is a block model (2)
3. Give two reasons why a designer might make a block model of a hair dryer. (2)
4. State one advantage and one disadvantage of using MDF to make a block model. (2)
5. Styrofoam can be used to make a block model. Describe the appearance of Styrofoam. (2)

Question set 37.

1. What is meant by the term Rapid Prototyping? (2)
2. Describe the process of stereolithography (SLA) (3)
3. Give one pro and one con of using stereolithography to make a model, rather than MDF. (4)
4. How does a 3D printer (3DP) work? (3)
5. How has the use of SLA and 3DP sped up the time it takes to get a new product onto shop shelves? (2)

Keywords:

Prototype, block model, MDF, Styrofoam.

Rapid Prototyping, stereolithography (SLA), 3D printer (3DP).

Vinyl Cutting.**Question set 38.**

1. Describe the process of vinyl cutting letters to decorate the side of a van (4)
2. The vinyl used when vinyl cutting is actually PVC. What does PVC stand for? (1)
3. Give two properties of PVC that make it suitable for use as letter on the side of a van. (2)
4. Give one reason why vinyl cutting is ideal for bespoke manufacturing (1)
5. Um...can't think of another question. Can you?

Drawing Equipment.**Question set 39.**

1. Sketch the following products:
 - a. A set square
 - b. A compass
 - c. Circle/ellipse template
 - d. French curve
 - e. Drawing board.
2. What is the different between a pencil marked 'H' and one marked 'B'? (1)

Material Properties.

Question set 40.

1. Stating an example, what is meant by an aesthetic property of a material? (2)
2. What is a functional property of a material? (1)
3. What is a mechanical property of a material? (1)
4. How is 'hard' different from 'tough'? (2)
5. Name one disadvantage of a material being very 'hard'. (1)

The End

El Fin

Die Ende

Sfarsit

Wakas-Tagalog

Ha sikum

Slutten

Now go and put the kettle on, you deserve it.