

Engineering Questions by Topic

Ordinary Level

Question 5

45 Marks



1996 Question 5

- (a) Name three thermoplastic materials and state a typical application.
- (b) With the aid of a diagram describe the process of blow moulding.
- (c) Some car bumpers are injection moulded in polypropylene. What properties make this material suitable for the product?
- (d) Describe the type of plastic used to produce:
 - (i) garden hose;
 - (ii) body of a three pin plug.



1997 Question 5

- (a) Explain the following terms, used in plastics technology:
- (i) Monomer (ii) Polymer
- (b) Name the plastics which would be best suited for the following applications and state whether they are thermosetting or thermoplastic materials.
- (i) Bearings;
- (ii) Cavity of dwelling house walls;
- (iii) Electronic breadboard.
- (c) Explain any two uses for the following processes:
- (i) Dip coating; (ii) Stripheating;
- (iii) Laminating; (iv) Blow moulding.



1998 Question 5

- (a) Blow Moulding, Extrusion and Vacuum Moulding are three methods of manufacturing plastic components.

With the aid of a diagram explain the construction and operation of one method and the type of article which is produced.

- (b) Explain the purpose of the following:

(i) Strip Heating; (ii) Laminating; (iii) Dip Coating.

- (c) Name the plastics usually associated with the following applications:

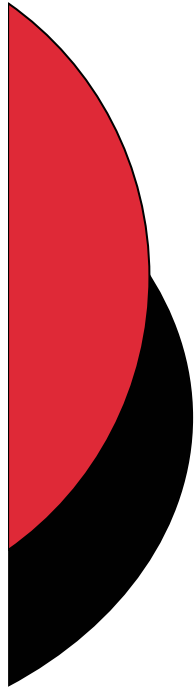
(i) Computer Keyboard; (ii) Thermal Insulation; (iii) Bearings.

1999 Question 5

- (a) Name the three methods shown which are used in the manufacturing of plastics.



- (b) Explain one method and give an example of the type of component which can be produced.
- (c) Name the plastics material used to produce the following:
(i) A CD; (ii) Gear Wheel; (iii) Garden Hose.
- (d) Explain the essential difference between thermoplastic and thermosetting plastic.



2000 Question 5

- (a) Describe the extrusion or blow moulding process for producing plastic components and identify a product from each.
- (b) List the following plastics under the heading of 'thermoplastics' or 'thermosetting' plastics and explain why they are classified as such:
(i) Acrylic (Perspex); (ii) Polyester resin; (iii) Polystyrene; (iv) Polyurethane.
- (c) Name the plastics usually associated with the following applications:
(i) Bearings; (ii) Packaging Insulation; (iii) Raincoats.

2001 Question 5

- (a) What are the main differences between thermoplastic and thermosetting plastics.
- (b) Describe one of the following processes used to form plastics:
(i) Vacuum forming; (ii) Blow moulding; (iii) Compression moulding.
- (c) Name three safety precautions to be observed when using a Plastics Dip Coating Tank.
- (d) Name the plastic used in the manufacture of the two components shown:

Safety Goggles



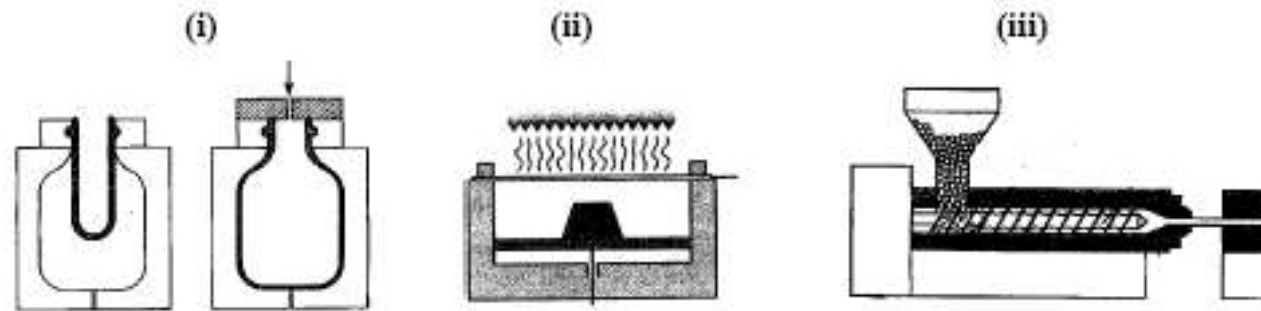
Drain Pipe





2002 Question 5

- (a) Explain **three** methods used to join plastics.
- (b) Name the following moulding processes which are used in the production of plastic components:



- (c) Describe **one** process in (b) identifying the components it produces.
- (d) Name **two** safety precautions to be observed, when using the Plastics Dip Coating tank.



2003 Question 5

- (a) Explain the following terms associated with the technology of plastics:
- (i) Thermosetting;
 - (ii) Thermoplastic.
- (b) Name three industrial manufacturing processes for producing articles from plastics.
- (c) Describe one process from (b) above, with the aid of a diagram, and identify the article produced.
- (d) Name a plastic used in the manufacture of insulation.



2004 Question 5

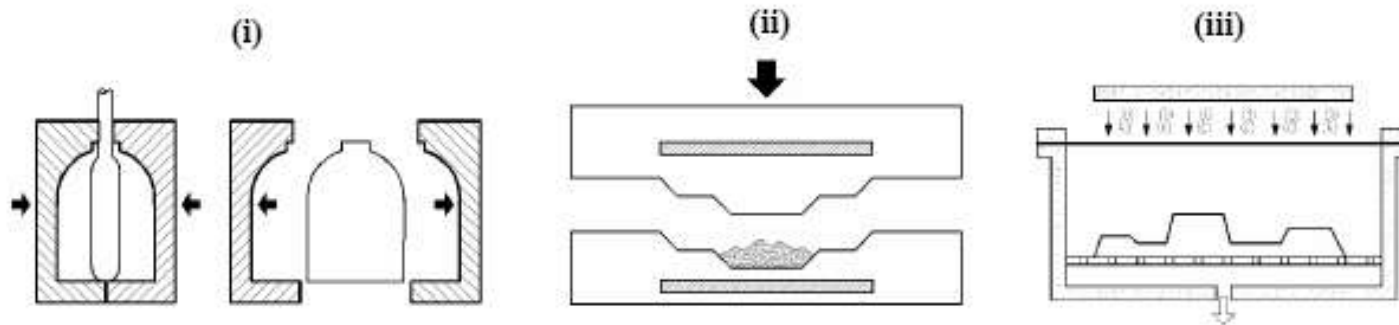
- (a) Vacuum Forming, Compression Moulding and Blow Moulding are methods of manufacturing plastic components.

With the aid of a simple line diagram describe one method and the type of component produced.

- (b) Identify the main difference between thermoplastics and thermosetting plastics.
- (c) Describe an application for one of following:
- (i) Plastic dip coating tank;
 - (ii) Strip heater.
- (d) Identify a suitable application for *Polystyrene*.

2005 Question 5

- (a) Three manufacturing processes for the production of plastic components are shown. Name each process.



- (b) For one of the processes in (a):

- (i) Describe how the component is formed;
- (ii) Identify a suitable component produced.

- (c) Describe any two of the following terms associated with plastics:

- (i) Thermoplastic,
- (ii) Elastic memory,
- (iii) Thermosetting plastic.

- (d) Identify two safety precautions to be observed when using adhesives.

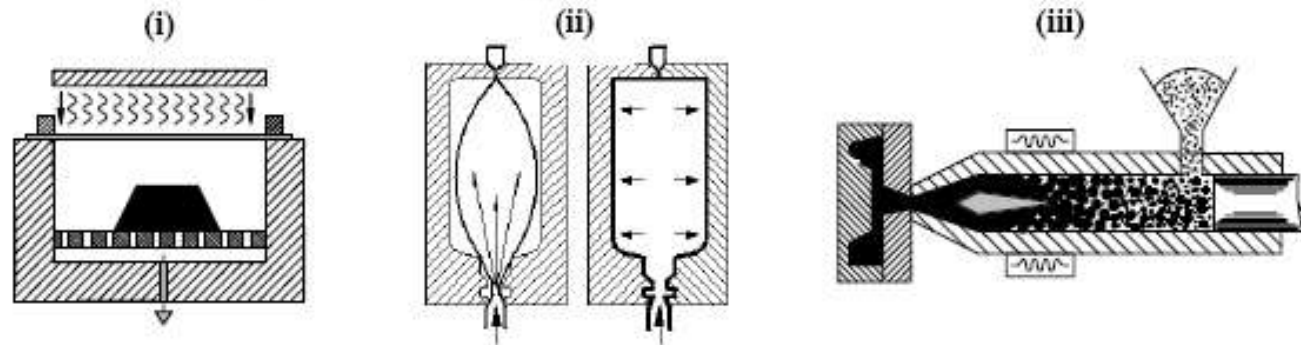


2006 Question 5

- (a) Describe **one** of the following processes used in the manufacture of plastic components and identify the component produced.
- (i) Injection moulding, (ii) Compression moulding, (iii) Blow moulding.
- (b) Identify the types of plastic which:
- (i) Softens when heated;
- (ii) Remains hard when heated.
- (c) Identify **two** safety precautions to be observed when drilling acrylic sheet.
- (d) Name the plastics used in the manufacture of:
- (i) Fishing line, (ii) Bin liners.

2007 Question 5

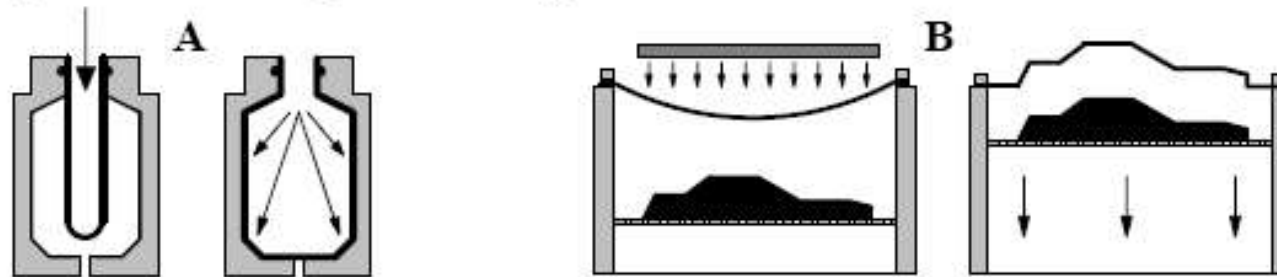
- (a) Name the **three** plastic manufacturing processes shown below:



- (b) Describe **one** of the plastic manufacturing processes shown in (a) and identify **one** component produced.
- (c) Explain **any two** of the following terms used in plastics technology:
- (i) Thermosetting plastic, (ii) Laminating, (iii) Thermoplastic.
- (d) List **two** safety precautions to be observed when using a plastic dip coating tank.

2008 Question 5

- (a) (i) Name the following plastic moulding processes shown at A and B below.

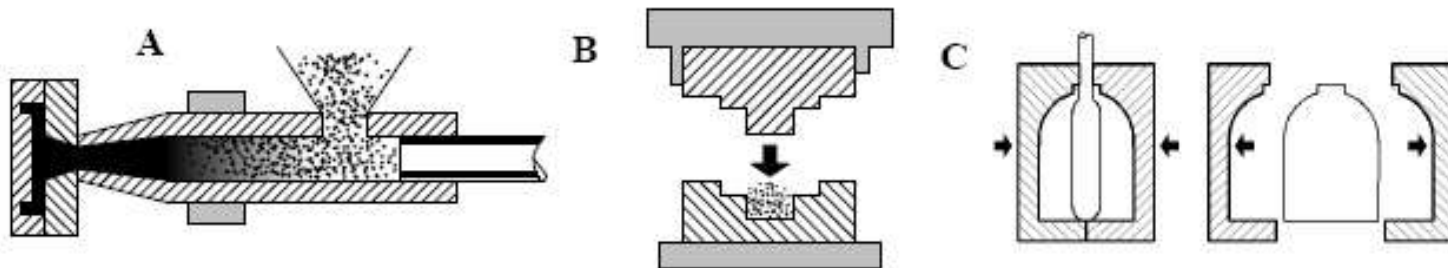


- (ii) Describe **any one** of the plastic moulding processes named at 5(a)(i) and identify **one** component produced.

- (b) Identify **two** safety precautions to be observed when cutting acrylic sheet.
- (c) (i) With the aid of a diagram, explain the operation of a plastic dip coating tank.
(ii) Suggest **one** suitable application for plastic dip coating.
- (d) Identify, as either thermosetting or thermoplastic, the type of plastic used in the manufacture of **each** of the following:
- (i) Lunch box, (ii) Saucepan handles.

2009 Question 5

- (a) (i) Name any **two** of the plastic manufacturing processes shown.



- (ii) Describe **any one** of the plastic manufacturing processes named at 5(a)(i) and state a suitable end product.

- (b) Identify **two** safety precautions to be observed when forming hot plastic sheet.
- (c) Explain the essential difference between a *thermoplastic* and a *thermosetting plastic*.
- (d) Name an industrial application for **each** of the following:
- (i) Nylon, (ii) Polystyrene.



2010 Question 5

- (a) For **any one** of the plastic components shown below:
- (i) Name the process used to manufacture the component;
 - (ii) Describe, with the aid of a diagram, the manufacturing process named in 5(a)(i).



Golf tee



Model car body

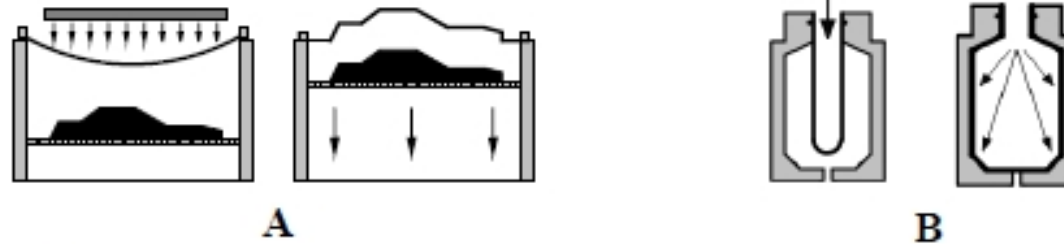


Water bottle

- (b) State **two** safety precautions to be observed when filing acrylic sheet.
- (c) Describe **any three** of the following terms associated with plastic technology:
- (i) Thermosetting plastic,
 - (ii) Elastic memory,
 - (iii) PVC,
 - (iv) Former.
- (d) Name a suitable plastic material for the manufacture of **each** of the following:
- (i) Cavity wall insulation,
 - (ii) Gear wheel.

2011 Question 5

- (a) For the plastic manufacturing processes shown at A and B:



- (i) Name each process;
- (ii) Describe the main differences between process A and process B;
- (iii) For each process, state a suitable end-product.
- (b) State two safety precautions to be observed when disposing of plastic materials.
- (c) Explain any three of the following in relation to plastic manufacturing:
- (i) Laminating, (ii) Adhesives, (iii) Strip heating, (iv) Dip coating.
- (d) Name any two types of thermoplastic material.



2012 Question 5

- (a) The three components shown below were manufactured from plastic materials.



Clothes hanger



Container

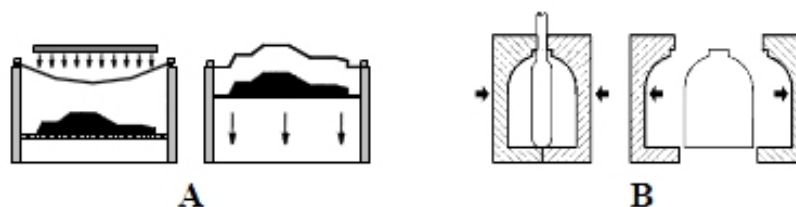


Socket

- (i) Name the process used to manufacture **any one** of the components.
- (ii) Describe with the aid of a diagram, the manufacturing process named in 5(a)(i).
- (b) State **two** safety precautions to be observed when drilling acrylic sheet.
- (c) Explain **any three** of the following terms used in plastic technology:
- (i) Thermosetting plastic, (ii) Elastic memory, (iii) Thermoplastic, (iv) PVC.
- (d) State **two** reasons why plastics may be hazardous to the environment.

2013 Question 5

- (a) Two plastic manufacturing processes, labelled A and B, are shown below.



- (i) Name the **two** plastic manufacturing processes labelled A and B.
- (ii) Describe any **one** of the manufacturing processes in 5(a)(i) and identify **one** component produced.
- (b) Describe **any three** of the following terms associated with plastics:
- (i) Thermoplastic, (ii) Dip coating, (iii) Thermosetting plastic, (iv) Elastic memory.
- (c) Name a plastic used in the manufacture of **each** of the following:
- (i) DVDs, (ii) Mobile phones.
- (d) State **two** safety precautions to be observed when working with hot plastics.