

Industrial Technology

Metal and Engineering Technologies

General Instructions

- Reading time – 5 minutes
- Working time – 1½ hours
- Write using black pen
- Draw diagrams using pencil
- Board-approved calculators may be used
- Write your Centre Number and Student Number at the top of page 5

Total marks – 40

Section I Pages 2–4

10 marks

- Attempt Questions 1–10
- Allow about 20 minutes for this section

Section II Pages 5–7

15 marks

- Attempt Questions 11–15
- Allow about 35 minutes for this section

Section III Page 9

15 marks

- Attempt Question 16
- Allow about 35 minutes for this section

Section I

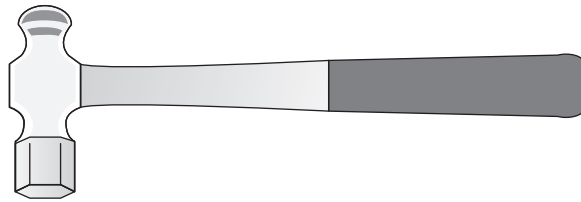
10 marks

Attempt Questions 1–10

Allow about 20 minutes for this section

Use the multiple-choice answer sheet for Questions 1–10.

1 What is the name of the hammer shown below?



- (A) Ball peen
 - (B) Soft faced
 - (C) Planishing
 - (D) Cross peen
- 2 What are the two major elements of steel?
- (A) Iron and carbide
 - (B) Iron and carbon
 - (C) Graphite and carbon
 - (D) Graphite and carbide
- 3 Which of the following is the best fastener to use for fixing a hinge to a sheet metal tool box?
- (A) Nail
 - (B) Pin
 - (C) Rivet
 - (D) Screw

4 What is the name of the drill shown?



- (A) Step drill
- (B) Chamfering drill
- (C) Double-sided drill
- (D) Combination centre drill

5 What type of gas is used in MIG welding?

- (A) Argon
- (B) Oxygen
- (C) Acetylene
- (D) Carbon dioxide

6 Which of the following methods can be used for manufacturing seamless metallic tubes?

- (A) Blowing
- (B) Extruding
- (C) Forming
- (D) Rolling

7 Which of the following welding processes uses nonconsumable electrodes?

- (A) TIG welding
- (B) MIG welding
- (C) Manual arc welding
- (D) Submerged arc welding

- 8** What is the melting point of aluminium?
- (A) 160°
 - (B) 260°
 - (C) 460°
 - (D) 660°
- 9** To what temperature must tool steel be heated in order to harden it?
- (A) 850°
 - (B) 1050°
 - (C) 1500°
 - (D) 1800°
- 10** What is the purpose of upsetting metals?
- (A) To make the metal thinner
 - (B) To make the metal thicker
 - (C) To join two pieces of metal together
 - (D) To press the metal to the required form or shape

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Industrial Technology
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Centre Number

Section II

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Student Number

15 marks

Attempt Questions 11–15

Allow about 35 minutes for this section

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Question 11 (1 mark)

What alloy is formed by mixing copper and tin?

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Question 12 (3 marks)

Outline the process of annealing mild steel.

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Question 13 (3 marks)

A copper bowl has been silver soldered. Outline how you would pickle, clean and polish the bowl.

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Question 14 (3 marks)

Describe the benefits of MIG welding.

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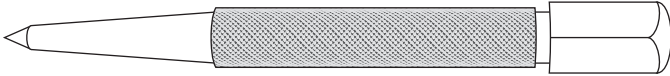
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Question 15 (5 marks)

Describe how the centre punch shown could be machined from a hexagonal piece of metal.

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Section III

15 marks

Attempt Question 16

Allow about 35 minutes for this section

Answer part (a) of the question in a writing booklet. Answer part (b) of the question in a SEPARATE writing booklet. Extra writing booklets are available.

Question 16 (15 marks)

Answer part (a) of the question in a writing booklet.

- (a) Explain how restructuring a business can affect quality control. **5**

Answer part (b) of the question in a SEPARATE writing booklet.

- (b) Assess the effect of new technology on production and efficiency in the metal and engineering industry. **10**

End of paper

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