

Answer **all** parts of the question.

There is **one** question in this paper which relates to the pre-release materials.

1 (a) Identify **two** reasons why the housings for the halogen floodlights were die-cast rather than press formed.

1. _____
 _____ [1]

2. _____
 _____ [1]

(b) (i) Name a suitable process used to manufacture the plastic adjusting knob shown in **Fig. 1** below.

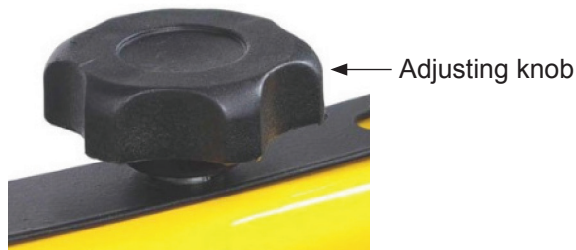


Fig. 1

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_____ [1]

(ii) Name a suitable plastic which could be used to manufacture the adjusting knob.

_____ [1]

Examiner Only	
Marks	Remark

(c) In the box below draw the electronic symbol for a switch that could be used to turn on and off each of the halogen floodlights.

[1]

(d) (i) Outline **two** mechanical properties of mild steel which make it a suitable material for the floodlights stand.

1. _____

[1]

2. _____

[1]

(ii) Give **one** reason for using aluminium alloy rather than mild steel to manufacture the stand.

Your answer must be different to that stated in part (d)(i).

[1]

(e) Outline **two** health and safety considerations the manufacturer must consider when making the halogen floodlights.

1. _____

[1]

2. _____

[1]

Examiner Only	
Marks	Remark

- (f) (i) The metal cage shown in **Fig. 2** covers the tempered glass, and has been spot welded at the joints. Give **one** reason why this is an appropriate joining method rather than using an adhesive.



Fig. 2

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_____ [1]

- (ii) Identify and name **one** other joining technique used in the construction of the floodlights.

_____ [1]

- (g) The mild steel stand of the floodlight has been powder coated. Give **two** reasons why this is an appropriate finish to apply to the mild steel stand.

1. _____ [1]

2. _____ [1]

Examiner Only	
Marks	Remark

(h) The plastic collet shown in **Fig. 3** below is attached to the stand of the floodlights.

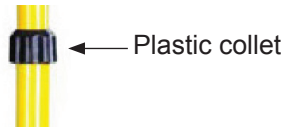


Fig. 3

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Explain how this plastic collet ensures that the stand stays in the required position.

[2]

(i) Explain **two** ways in which the use of ICT can enable the ordering and movement of materials for the production of the floodlights to be made more efficient.

Quality of written communication will be assessed in this question.

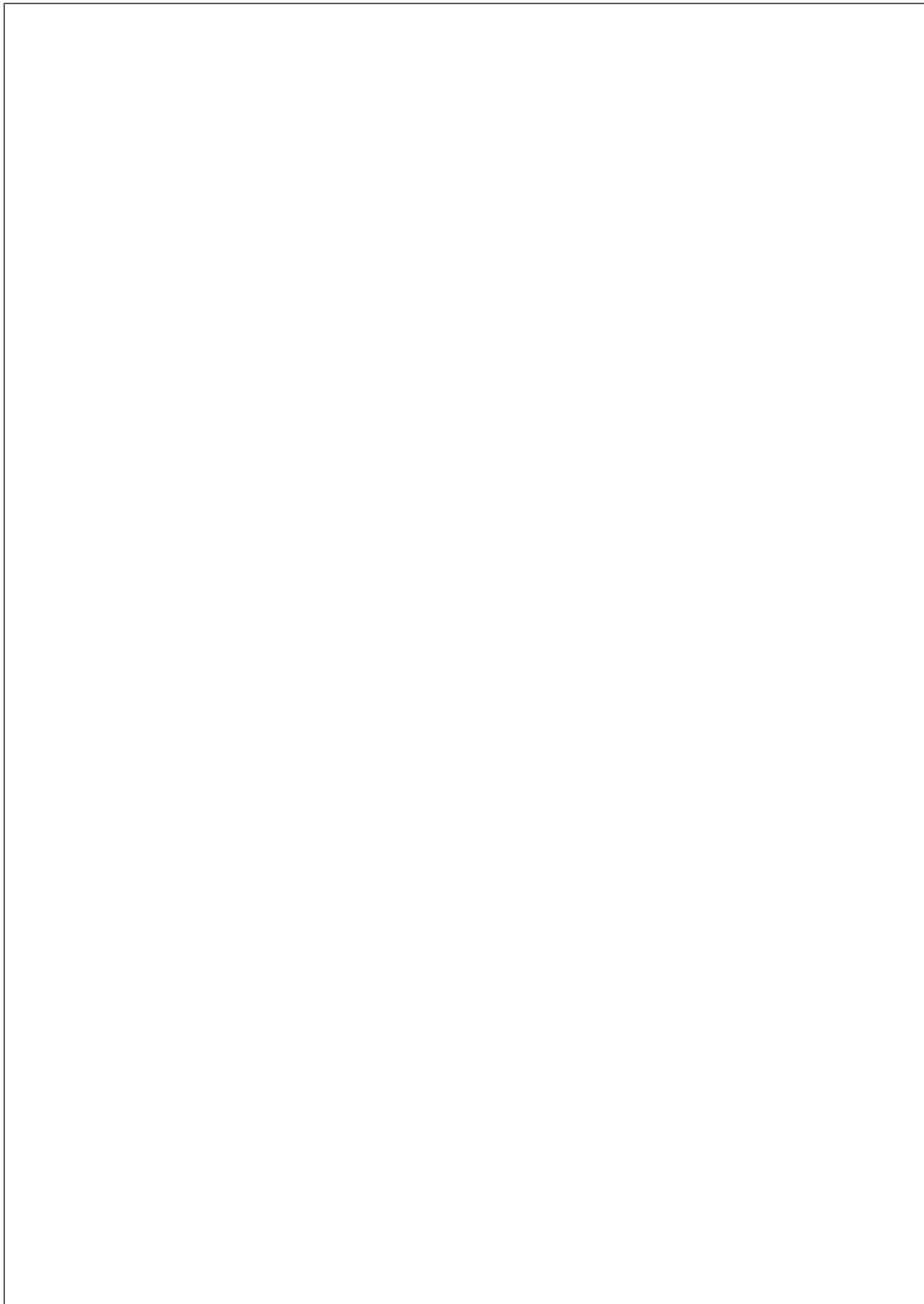
[4]

Examiner Only	
Marks	Remark

(k) The casings for the halogen floodlights are manufactured by the process of die casting. In the box below, using annotated sketches and appropriate terminology, explain the process of die casting.

Marks will be awarded for

- Detail contained in sketches [4]
- Quality of sketches [3]
- Detailed notes [3]



[10]

Examiner Only	
Marks	Remark

