

Engineering Studies

Section III (continued)

Marks

Question 18 — Engineering and the Engineering Report (10 marks)

- (a) Discuss the use of CAD systems as an alternative to traditional drawing methods. **3**

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* ~~to~~ CAD are more accurate
.....
* CAD/CAM can design it then machine it
.....
* CAD/CAM are more expensive to set up
.....
* need to train people to use CAD
.....
* once you're trained CAD is easier to
use than traditional drawing methods.
.....
.....

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Question 18 (continued)

(b)



- (i) In many public areas, polymer containers similar to those shown are provided for rubbish and recyclable materials. Describe a forming process to produce the main body of these large containers. 2

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Vacuum moulding - the material is melted to a soft stage, vacuumed up by a strong vacuum system then dropped down over a mould to set.

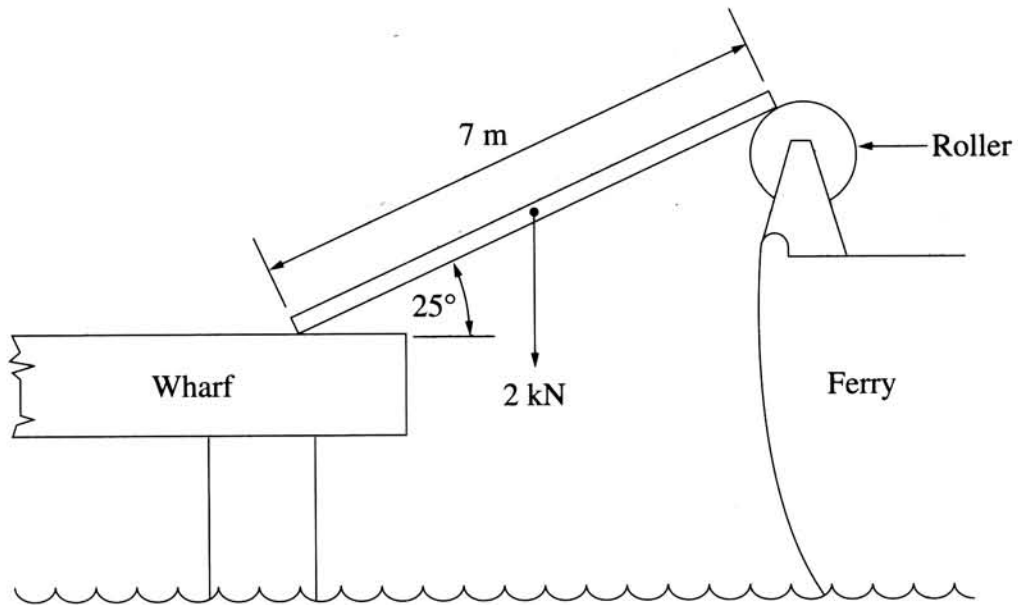
- (ii) The lids used for the containers are moulded from polyethylene. Outline the reasons for this being a suitable choice of material in service. 2

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polyethylene is strong, impact resistant, and a good general purpose material

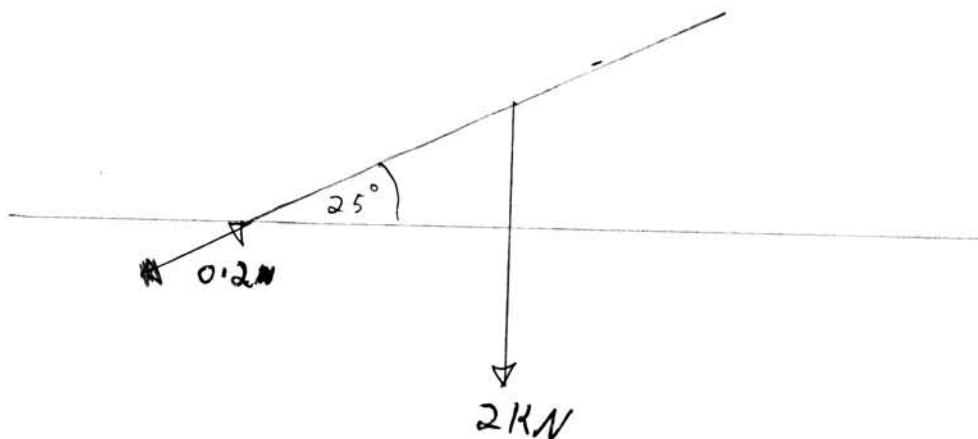
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Question 18 (continued)

- (c) A loading ramp between a ferry and a wharf is shown. The ramp has a weight of 2 kN and a coefficient of static friction with the wharf of 0.2. There is no friction at the roller support. 3



Sketch a free-body diagram of the ramp. Show whether the ramp will slip or remain static for these conditions.



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