2003 HIGHER SCHOOL CERTIFICATE EXAMINATION

Engineering Studies

Section III

20 marks
Attempt Questions 17–18
Allow about 40 minutes for this section

Answer the questions in the spaces provided.

Marks

Question 17 — Engineering and the Engineering Report (10 marks)

Shade areas are to be added to a major harbourside transport interchange. The interchange is also a popular tourist destination.

(a) An engineering report is to be produced for the development of shade areas near the interchange. Outline a technical issue and a social issue that would need to be considered in such a report. **2**

Technical:

shaded areas could be hard to construct around the transport interchange.

Social:

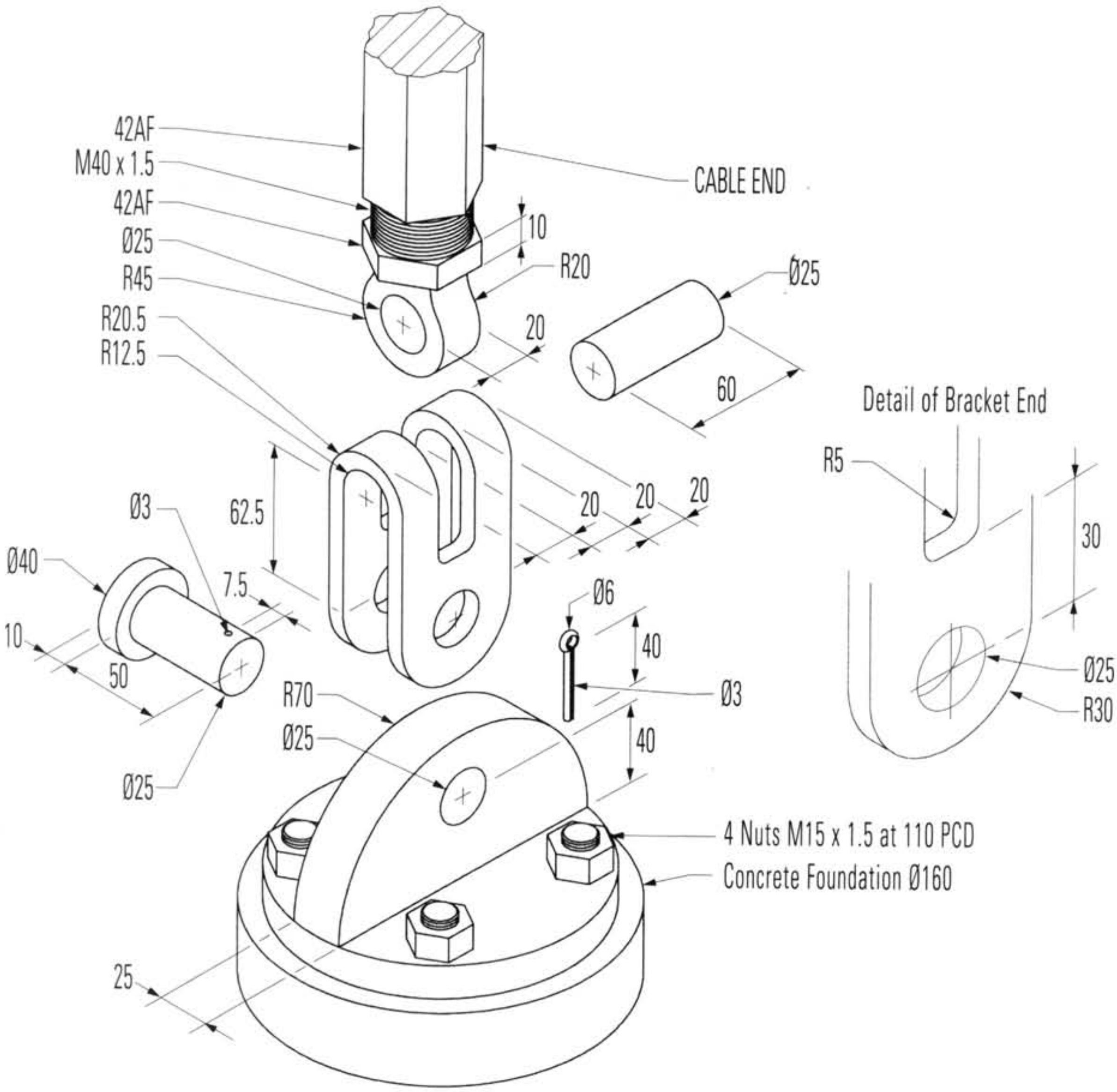
Shade areas would be a good place for tourists to get out of the weather.

Question 17 continues on page 28

Question 17 (continued)

Marks

(b) Details of a domestic shade area cable tensioning system are given. **4**

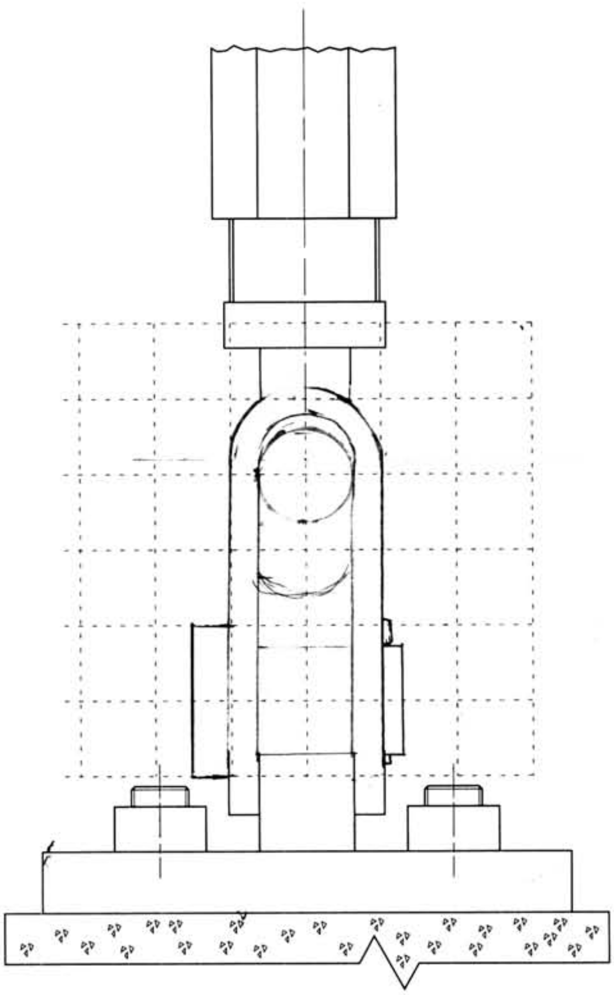


Question 17 continues on page 29

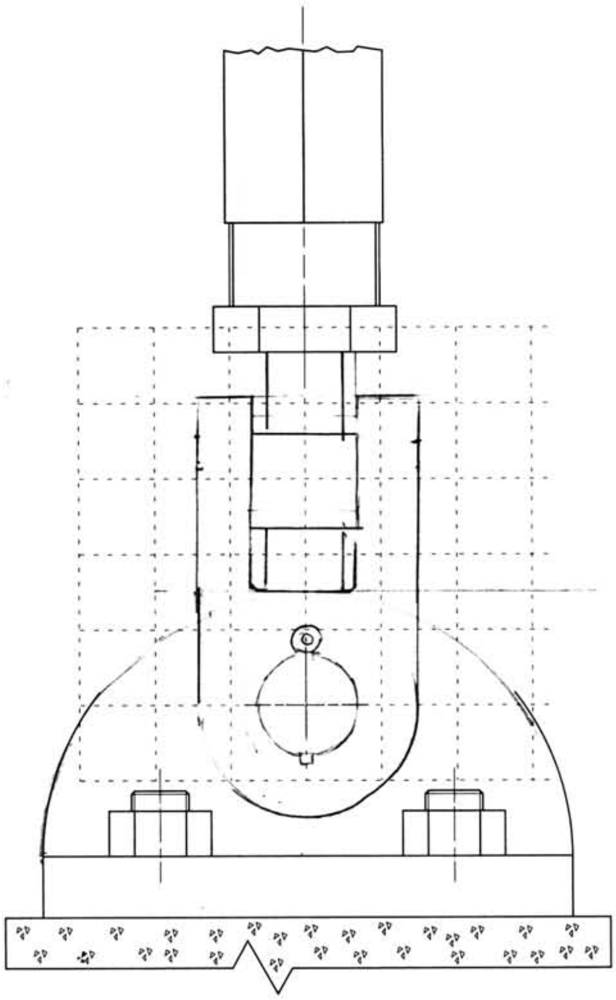
Question 17 (continued)

A partially completed orthogonal sketch of the front and side views of the assembly is shown, drawn to a scale of 1 : 2.

Complete the assembled orthogonal sketch on the grid. Apply AS1100 drawing standards where appropriate. DO NOT show hidden outline. DO NOT dimension.



SIDE VIEW



FRONT VIEW

Question 17 continues on page 30

Marks

Question 17 (continued)

(c)

(i) A support for a public shaded area is shown in the photograph. Two types of members, *A* and *B*, are used to distribute the forces created by the weight of the fabric. **2**

Explain the structural reasons for the difference in the shape and size of the members.

The shape + sizes of the materials are different as they are joined to the structure differently and are both used to distribute different forces.

(ii) PVC coated polyester fabric is widely used as the cover for shade areas. Discuss how developments in engineering textiles have influenced the design of public shade structures. **2**

The use of different coatings on fabric means they can be used in more places eg. in the weather.

End of Question 17