higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

CIVIL AND STRUCTURAL STEELWORK DETAILING

(Second paper)

NQF LEVEL 4

(12050675)

17 November 2023 (X-paper)
09:00–11:00

REQUIREMENTS: **A4 drawing sheets**
A3 drawing sheets
Yellow cover folder (BOE 8/15)
Standard hot-rolled structural steel sections (BOE 8/1).
Hot-rolled steel sections (BOE 8/2).

CAD software, calculators and drawing instruments may be used.

This question paper consists of 4 pages

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NATIONAL CERTIFICATE (VOCATIONAL)
CIVIL AND STRUCTURAL STEELWORK DETAILING
NQF LEVEL 4
PAPER 2
TIME: 2 HOURS
MARKS: 75

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each section on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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QUESTION 1

Draw to a suitable scale a typical cantilever wall using the following:
(Use your discretion for dimensions/information not given)

Height	:	8250 mm
Thickness of wall	:	250 mm
Length of toe	:	1200 mm
Length of tail	:	4050 mm
Thickness of base	:	450 mm
Concrete cover	:	50 mm

The Toe is embedded 1250 mm below ground and is situated on the left-hand side of the wall.
The tail is 8250 mm below ground and has an inclined wall from its tip to 200 mm away from the top of the wall.
All longitudinal reinforcement is Y12 @ 200 C/C and transverse reinforcement is Y16 @ 120 C/C

[25]

QUESTION 2

Redraw to a scale of 1:5 the Truss detailing in FIGURE 1 below using CAD.
(Use your discretion for dimensions/information not given)

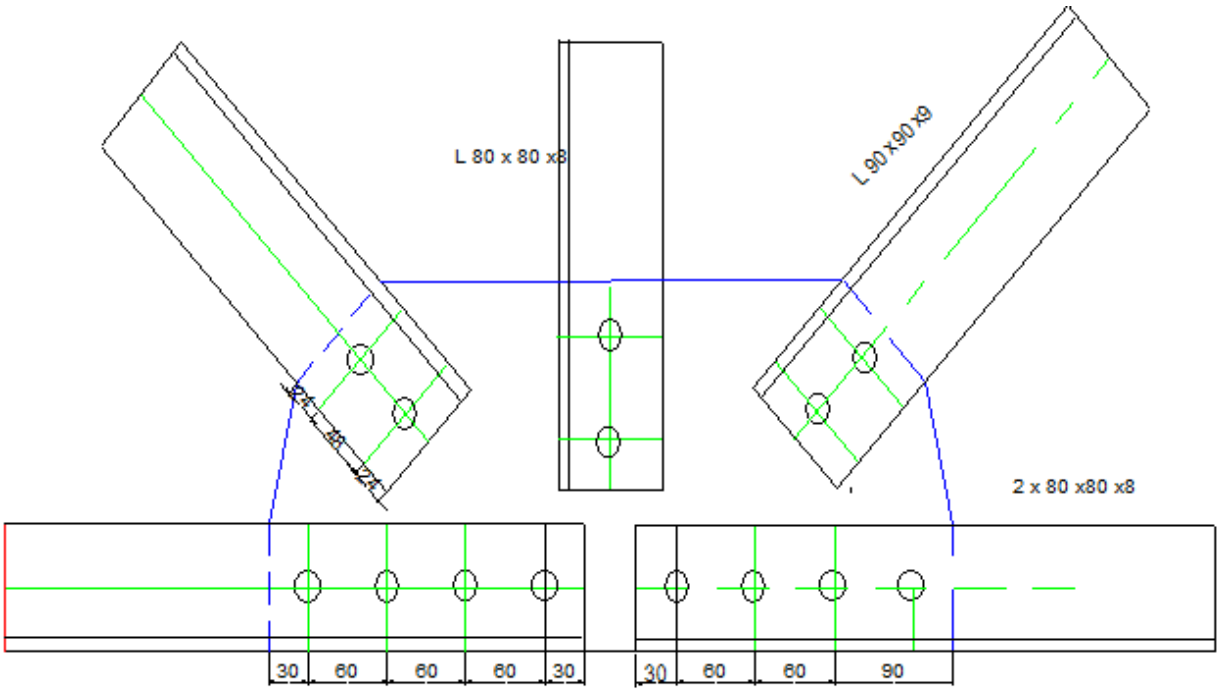

FIGURE 1

[25]

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QUESTION 3

FIGURE 3, shows a line diagram of a typical bolted latticed girder.

Draw, to scale 1 : 5, typical details of the following:
Detail C

SPECIFICATIONS:
Outside members: 100 × 100 × 10 hot-rolled steel angle profile
All internal members: 70 × 70 × 6 hot-rolled steel angle profile
All gusset plates: 10 mm thick
Bolt-hole edge distances: Minimum of 30 mm
All bolt holes are drilled on the centre line of the angles and all bolts are M16.
Do not insert any dimensions. Information not given is left to your discretion.

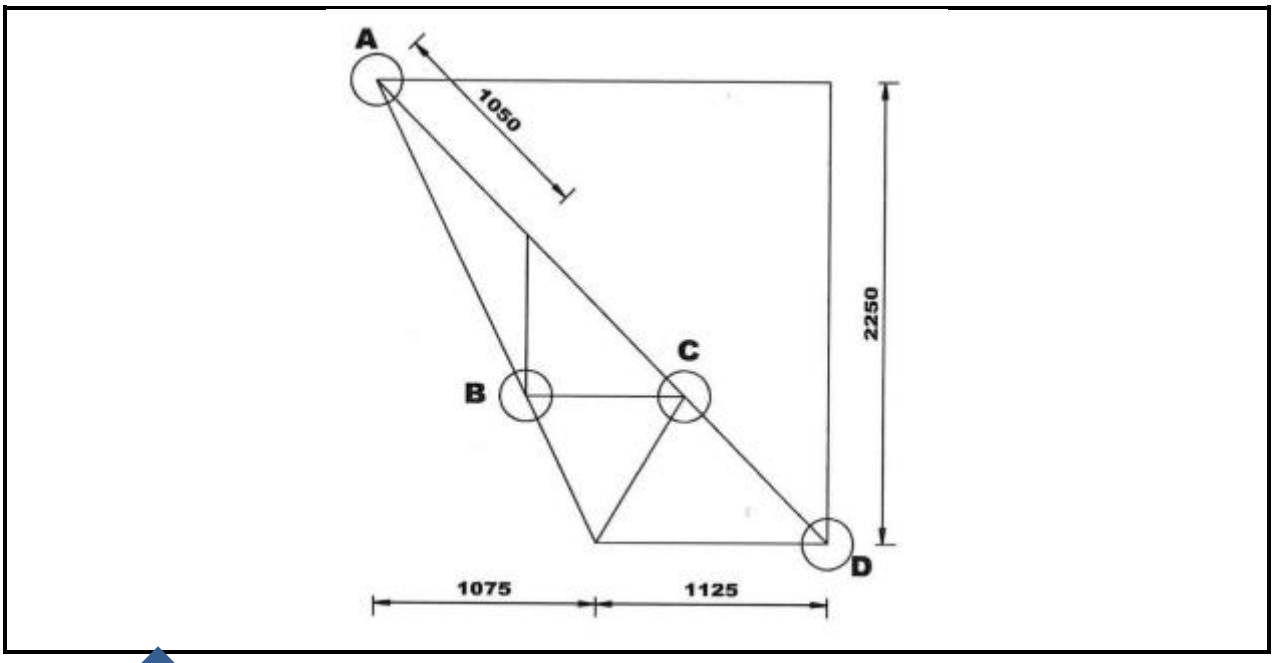

FIGURE 2

[25]

TOTAL: 75

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