

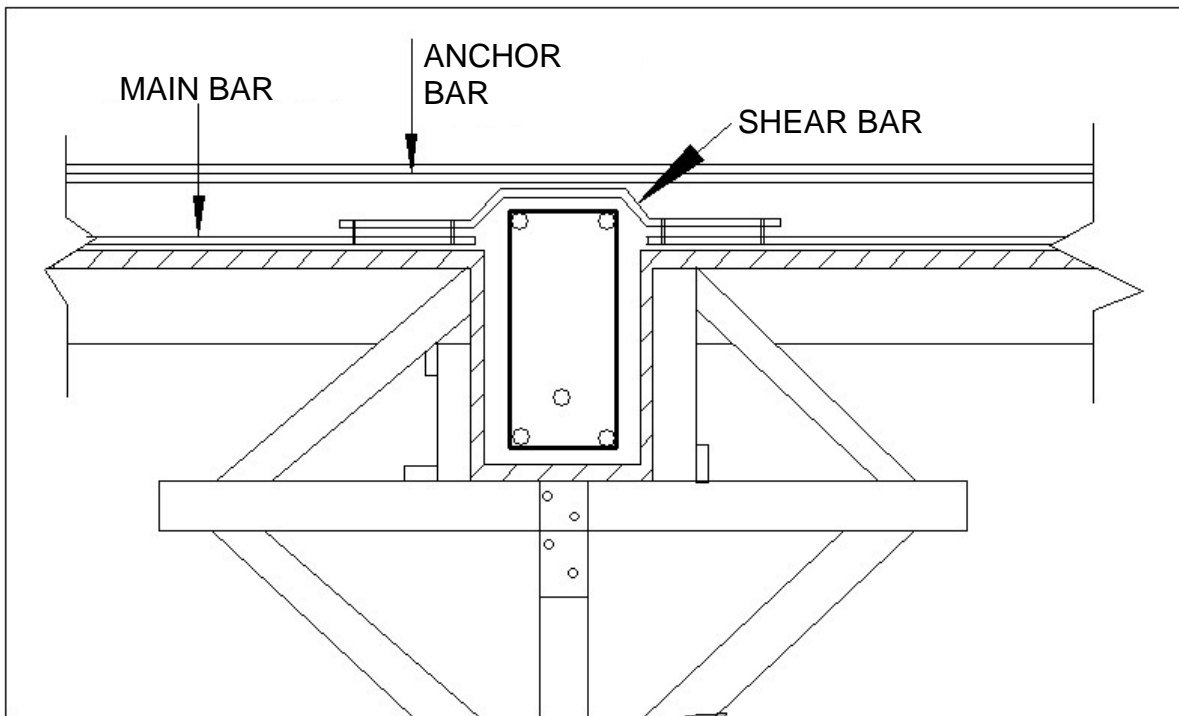
**CIVIL TECHNOLOGY**

**ANSWER BOOKLET MARKING GUIDELINES**

Time: 3 hours

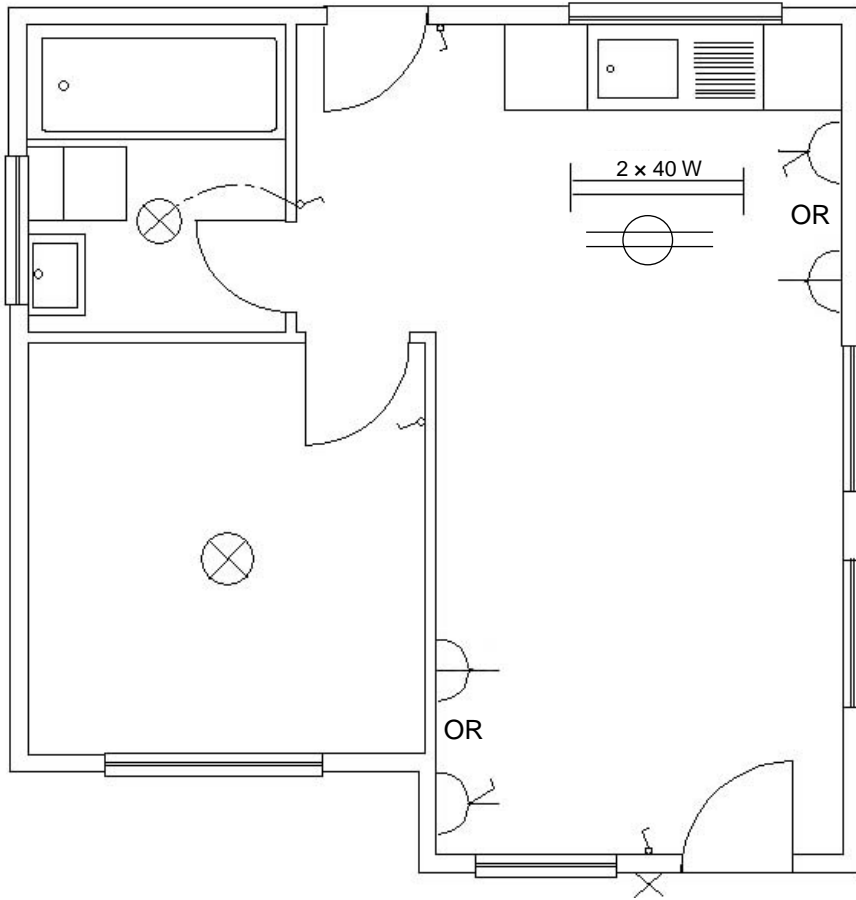
200 marks

**QUESTION 2.4.2 REINFORCEMENT**



Assessment Criteria	Possible Mark	Mark Obtained
Placing main bar	1	
Placing anchor bar	1	
Placing shear bar	1	
Labelling of bars	3	
<b>TOTAL</b>	<b>6</b>	

**QUESTION 3.3 ELECTRICAL DIAGRAM**



Question	Assessment Criteria	Possible Mark	Mark Obtained
3.3.1	2 × Switched socket outlets	2	
3.3.2	Double-tube fluorescent light	1	
3.3.3	Filament light in bathroom and bedroom	2	
3.3.4	Wall-mounted light	1	
3.3.5	Placement of single-pole one-way switch and wiring – bathroom	2	
	<b>TOTAL</b>	8	

**QUESTION 4.3.1 QUANTITY SURVEYING**

Item	Measurement	Result	Description
			Total area of wall before deduction
1/	6,0		
	<u>2,7</u>	16,2 m <sup>2</sup>	(2)
			Number of bricks for the wall:
2/	16,2		
	<u>52</u>	1 685 bricks	(2)
			Area of Window 1
1/	1,0		
	<u>1,2</u>	1,2 m <sup>2</sup>	(1)
			Area of Window 2
1/	1,2		
	<u>0,8</u>	0,96 m <sup>2</sup>	(1)
			Total area of openings
			1,2 + 0,96 = 2,16 m <sup>2</sup> (1)
			Deduction of bricks for the openings
2/	2,16		
	<u>52</u>	225 bricks	(2)
			Number of bricks after deduction
			1 685 – 225 = 1 460 (1)
			5% breakage of bricks
	1 460		
	<u>0,05</u>	73 bricks	(1)
			Total number of bricks:
			1 460 + 73
			1 533 bricks (1)

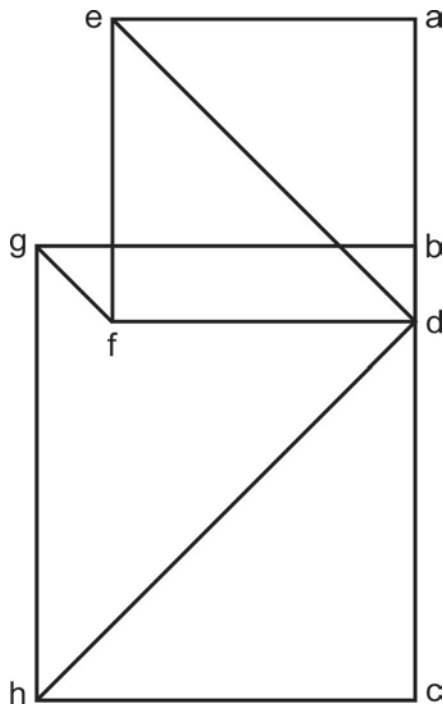
(12)

**QUESTIONS 4.3.2 AND 4.3.3**

Item	Measurement	Result	Description
			Volume of floor:
1/	5,78		
	4,0		
	<u>0.075</u>	1,734 m <sup>3</sup>	(3)
			Mix ratio:
			2 + 4 + 4 = 10 (1)
			Volume of cement needed:
			1,734 × 2 ÷ 10 <b>OR</b>
			1,734 ÷ 10 × 2
			= 0,346 m <sup>3</sup> (1)
			Number of bags:
			0,346 ÷ 0,015
			= 24 Bags (1)

**QUESTION 5.3 APPLIED MECHANICS**

5.3.1 Force Diagram



Scale 5 mm = 1 kN

**Mark with mask.**

(6)

5.3.2 Nature and magnitude

MEMBER	NATURE	MAGNITUDE
GF	<b>A Tie</b>	2,8 kN
DE	<b>B Tie</b>	11,2 kN
BG	Strut	<b>C 10 kN (9 – 11 kN)</b>
HD	Tie	<b>D 14 kN (13 – 15 kN)</b>

(4)

**QUESTION 6.1 HOUSE PLAN – ANALYTICAL**

No.	Question	Answer	Mark	Mark Obtained
6.1.1	Identify the elevation shown in VIEW 1.	South elevation	1	
6.1.2	Identify the elevation shown in VIEW 2.	East elevation	1	
6.1.3	Identify the elevation shown in VIEW 3.	North elevation	1	
6.1.4	State the type of drawing shown in VIEW 5.	Site plan	1	
6.1.5	State the full name of the abbreviation at 6.	Finished floor level	1	
6.1.6	Identify the feature at 7.	Sliding door	1	
6.1.7	Identify part 8 of the roof detail.	Tie beam	1	
6.1.8	Identify part 9 of the roof detail.	Rafter	1	
6.1.9	State the name of the feature at 10.	BIC or Built-in Cupboard/closet	1	
6.1.10	State the name of the feature at 11.	Garage door or Roll-up door	1	
6.1.11	State the name of the feature at 12 indicated by the long chain line shown on VIEW 4.	Roof outline	1	
6.1.12	State the colour that will be used to draw the proposed new dwelling in VIEW 5.	Red	1	
6.1.13	State a suitable scale to draw VIEW 5.	1:200 <b>OR</b> 1:500	1	
6.1.14	Calculate the perimeter of stand 103.	$32\ 500 + 38\ 500 + 40\ 000 + 25\ 000$ $= 136\ 000$ meters <b>OR</b> 136 000 mm	2	

(15)

SECTIONAL A-A  
SCALE 1 : 50

Assessment Criteria	Possible Mark	Mark Obtained
Foundation	1	
Hard core fill	1	
Undisturbed Earth	1	
Wall with drawing symbol	1	
Floor slab with drawing symbol	1	
Correctness of roof truss	5	
Wall plate	1	
Window	1	
Window sills	1	
Lintel	1	
Dimensioning of foundation	2	
Labels	4	
Application of Scale	3	
Line Quality and Neatness	2	
<b>TOTAL</b>	<b>25</b>	

QUESTION 6.2		
<b>EXAM NO:</b>		
<b>GR 12</b>	<b>2015</b>	

Use a mask to mark this drawing