higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

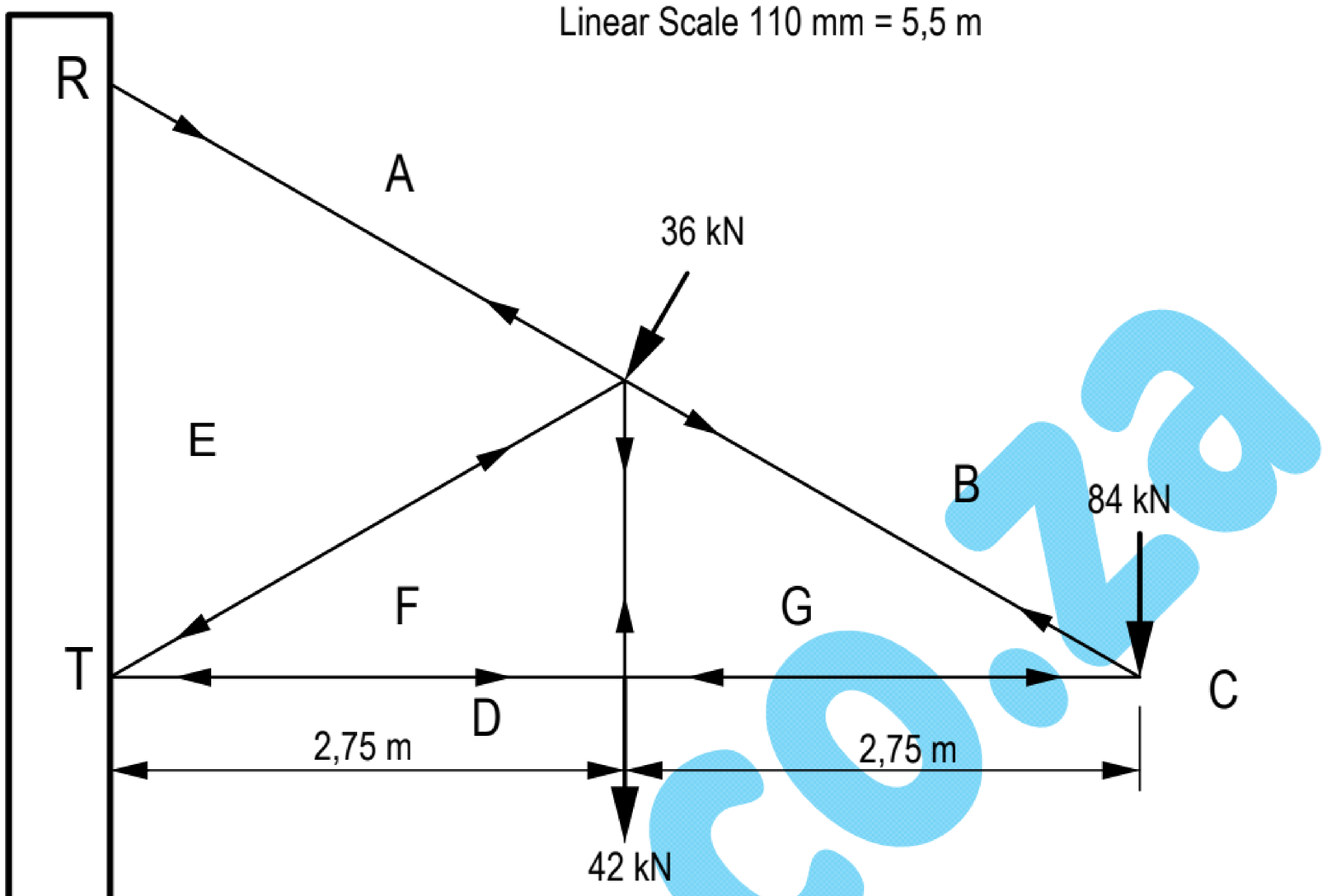
BUILDING AND STRUCTURAL CONSTRUCTION N5

22 April 2021

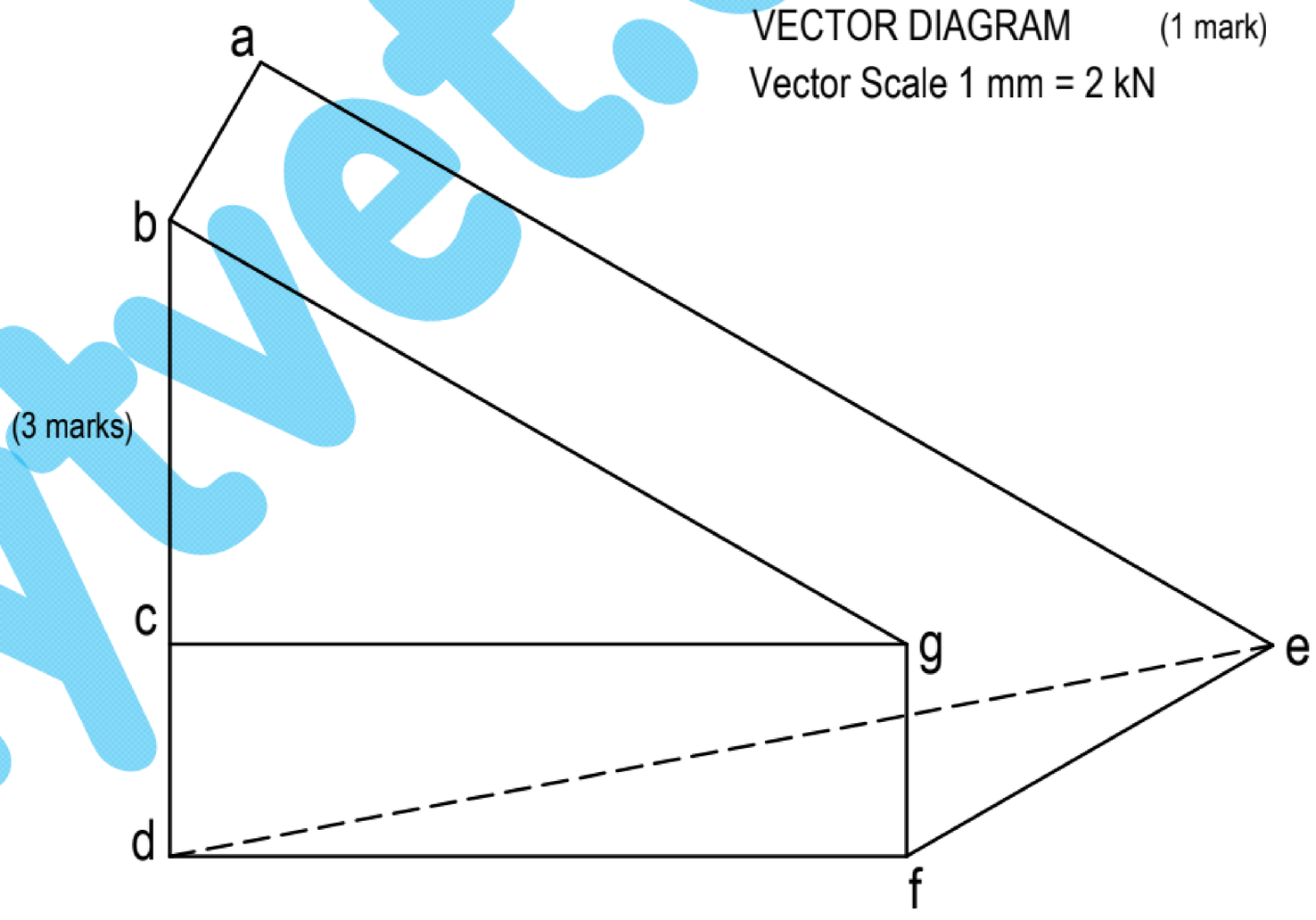
This marking guideline consists of 9 pages.

QUESTION 1

SPACE DIAGRAM (1 mark)
Linear Scale 110 mm = 5,5 m



VECTOR DIAGRAM (1 mark)
Vector Scale 1 mm = 2 kN



(3 marks)

T = de = 221,8 kN at 30º
R = ea = 231kN at 10,86º
(4 marks)

MEMBER	MAGNITUDE	TYPE
EA	231 kN	Tie
BG	168 kN	Tie
GC	145 kN	Strut
DF	145 kN	Strut
FG	42 kN	Tie
EF	83 kN	Strut

(6 marks)

[15]

QUESTION 2

2.1 Resistance of the bolts due to shearing:

$$\text{Stress} = \frac{\text{Load}}{\text{Area}}$$

$$\text{Force} = \text{Area} \times \text{Stress} \times \eta$$

$$= \frac{\pi(D-0{,}9382P)^2}{4} \times 101 \times 6 \checkmark$$

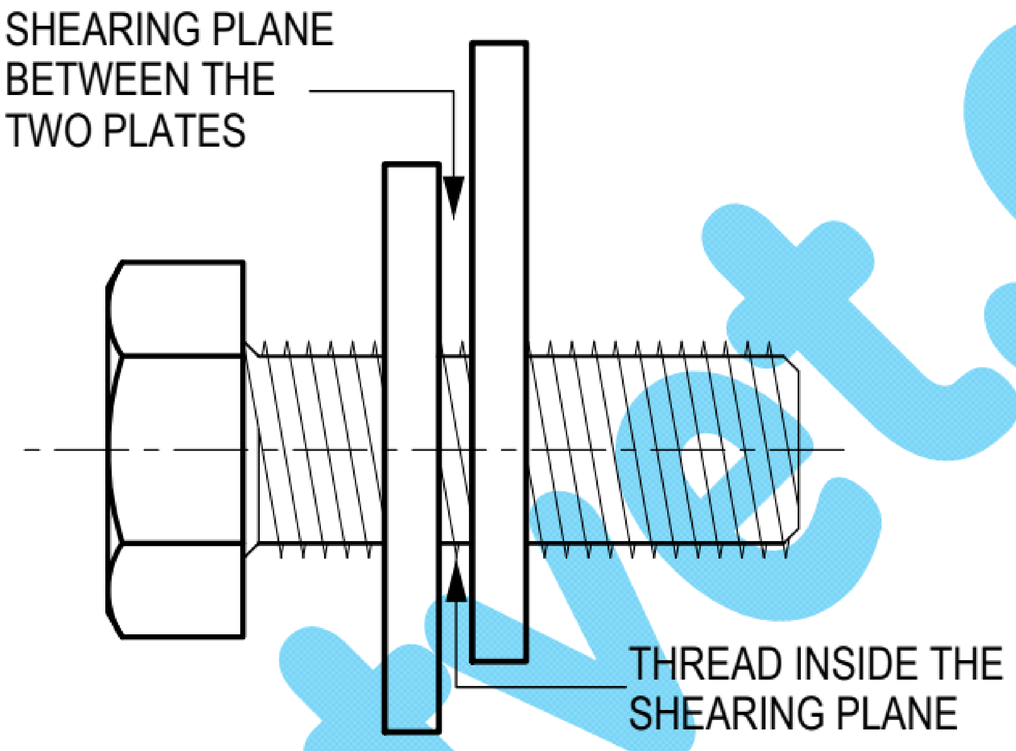
$$= \frac{\pi(12-0{,}9382 \times 2)^2}{4} \times 101 \times 6 \checkmark$$

$$= 80{,}5 \times 101 \times 6$$

$$= 48{,}8 \text{ kN} \checkmark$$

(3)

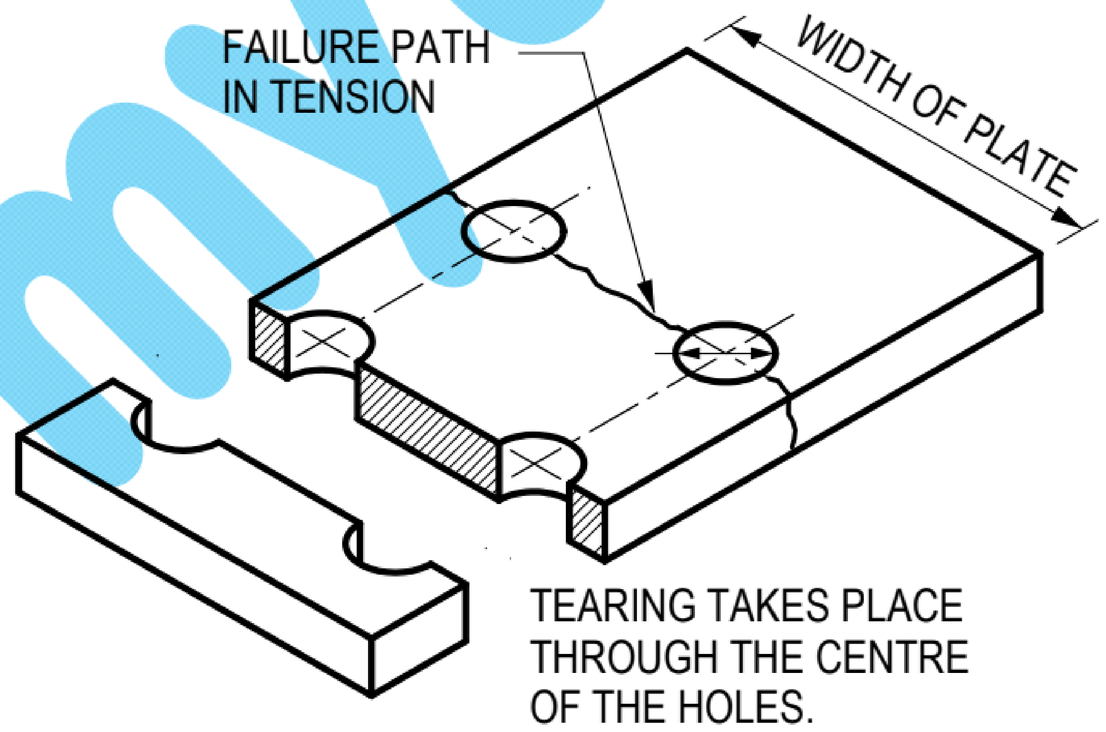
2.2



MARK ALLOCATION	
Drawing corr	1
shear plane indicated	2
Total	3

(3)

2.3



MARK ALLOCATION	
Drawing corr	1
Tearing plane indicated	2
Total	3

(3)
[9]