higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

MULTIDISCIPLINARY DRAWING OFFICE PRACTICE: ELECTRICAL DRAUGHTING

14 AUGUST 2019

This marking guideline consists of 7 pages.

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MARK ALLOCATION SUMMARY							
ELEMENT	**QUESTION**	**1**	**2**	**3**	**4**	**5**	**%**
Balanced layout and size		0	4	4	5	4	**17%**
Correctness		20	8	6	5	7	**46%**
Lettering		0	4	5	5	5	**19%**
Line work and neatness		0	4	5	5	4	**18%**
TOTAL:		**20**	**20**	**20**	**20**	**20**	**100%**

QUESTION 1: GENERAL THEORY

1.1
1.1.1 16 mm^2
1.1.2 6–10 mm^2
1.1.3 4 mm^2
1.1.4 2,5 mm^2
1.1.5 1,5 mm^2

(5 × 1) (5)

1.2
- Silver
- Gold
- Copper
- Lead
- Iron

(Any relevant 3 × 1) (3)

1.3
$S = \sqrt{3} \times V_L \times I_L$ ✓
$500 \times 10^3 = 3 \times 400 \times I_L$ ✓
$I_L = 500 \times 10^3/(3 \times 400)$ ✓
$= 721{,}688\ A$ (3)

1.4 If a rotating object (e.g. a gear that rotates at 45 r/s) is illuminated by a discharge lamp that operates from an AC supply (e.g. 50 Hz), the stroboscopic effect creates the illusion that the gear rotates anticlockwise at a slower speed (50 – 45 = 5 r/s). At any real rotational speed that is a multiple of the supply frequency (e.g. 50 r/s; 100 r/s, 150 r/s, etc.), the stroboscopic effect will create the illusion that the gear is standing still. (4)

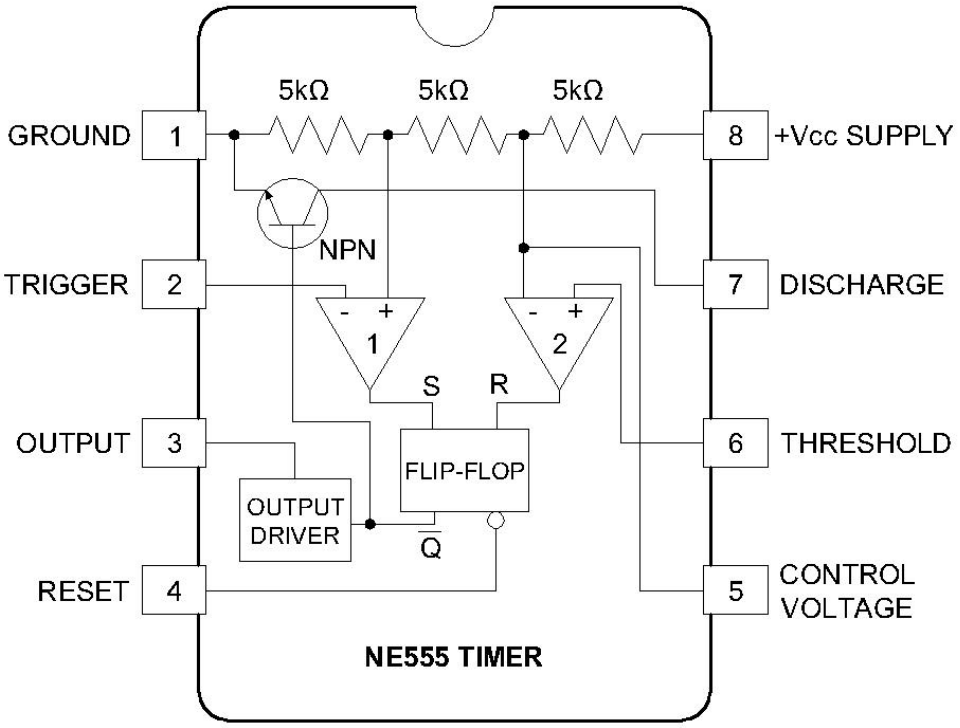
1.5

ELECTRICAL QUANTITY	STANDARD UNIT
1.5.1 Energy	Joules
1.5.2 Frequency	Hertz
Reactance	1.5.3 Ohm
Resistance	1.5.4 Ohm
Charge	1.5.5 Coulomb

(5 × 1) (5)
[20]

QUESTION 2: GRAPHICAL SYMBOLS AND ELECTRONIC DIAGRAMS

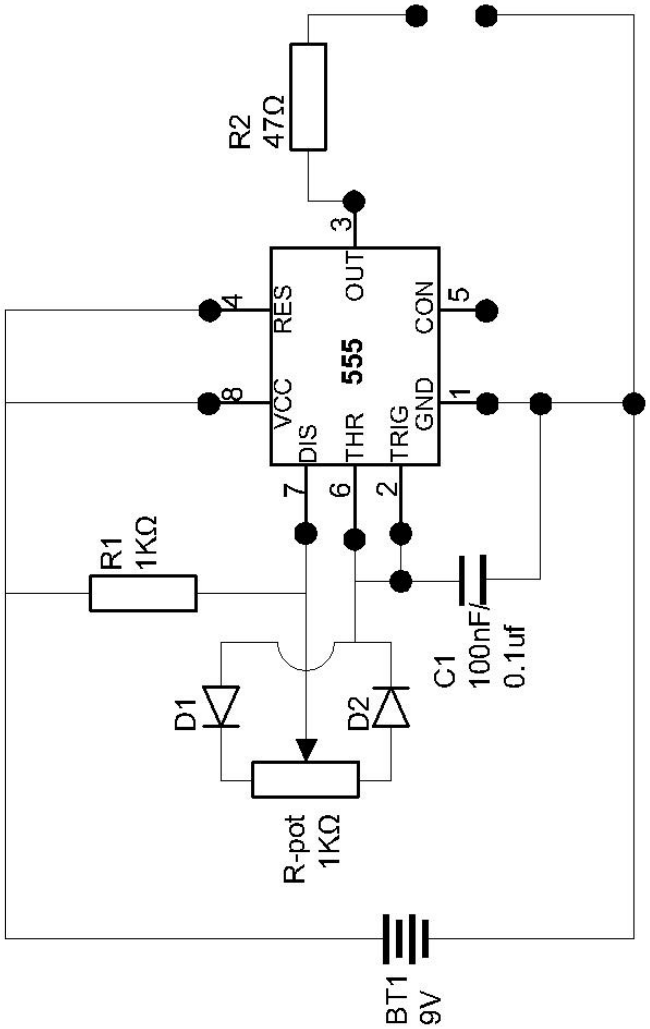
2.1



Balanced layout and size	4 × ½ = 2
Correctness	4
Lettering	2
Line work and neatness	4 × ½ = 2

(10)

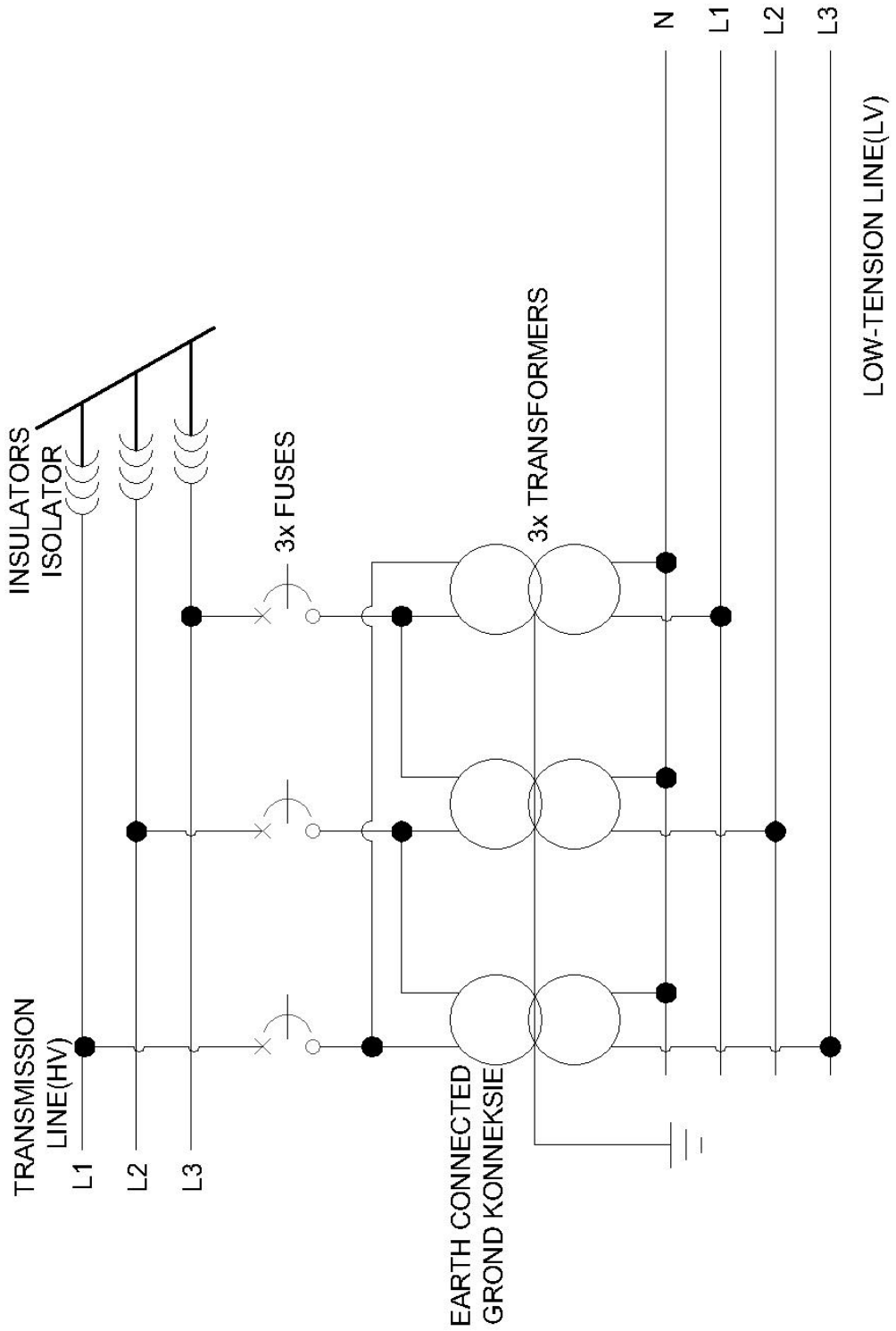
2.2



Balanced layout and size	4 × ½ = 2
Correctness	4
Lettering	2
Line work and neatness	4 × ½ = 2

(10)
[20]

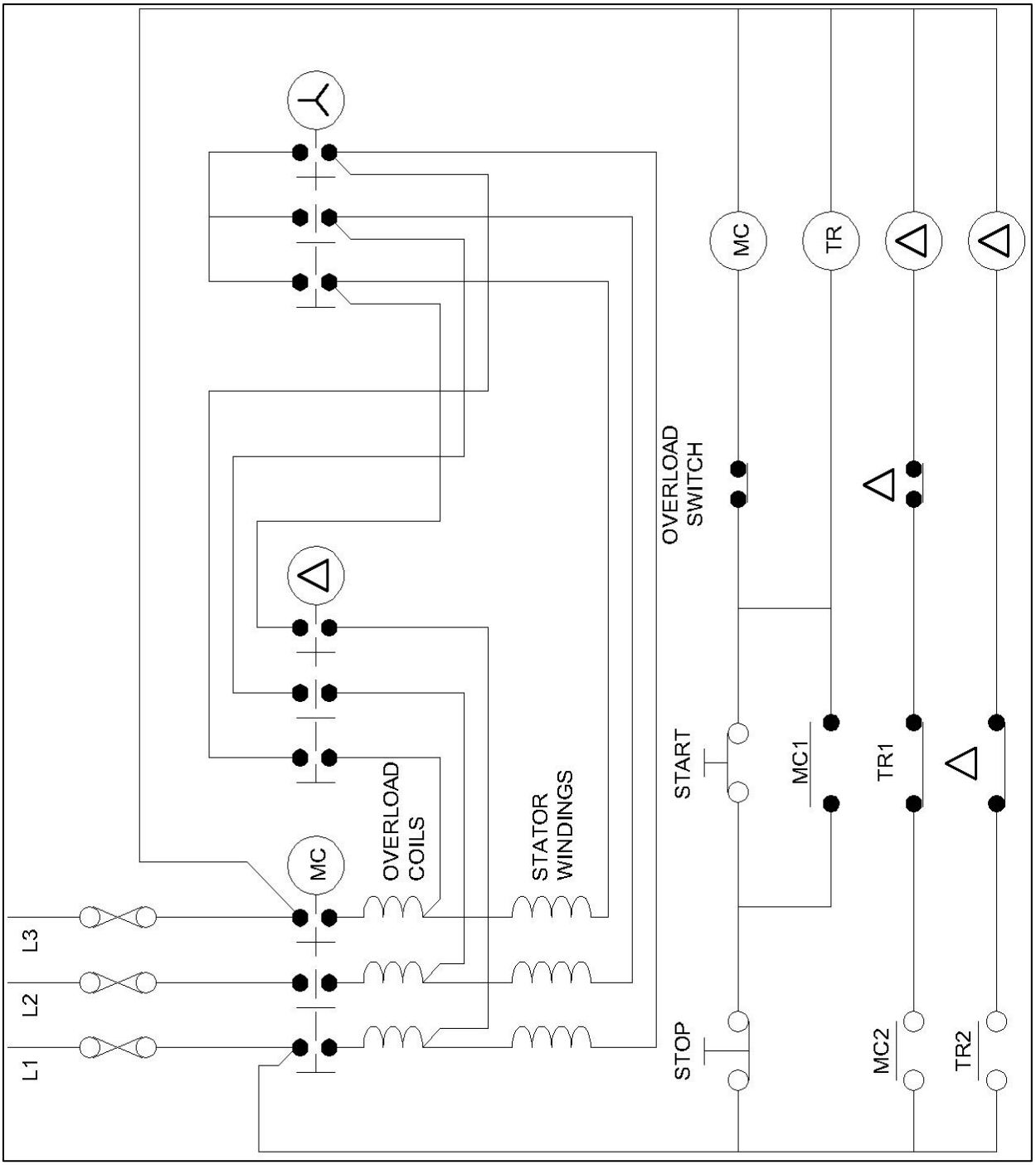
QUESTION 3: GENERATION AND DISTRIBUTION OF ELECTRICITY



Balanced layout and size	4
Correctness	6
Lettering	5
Line work and neatness	5

[20]

QUESTION 4: ELECTRICAL MOTORS AND CONTROL DEVICES

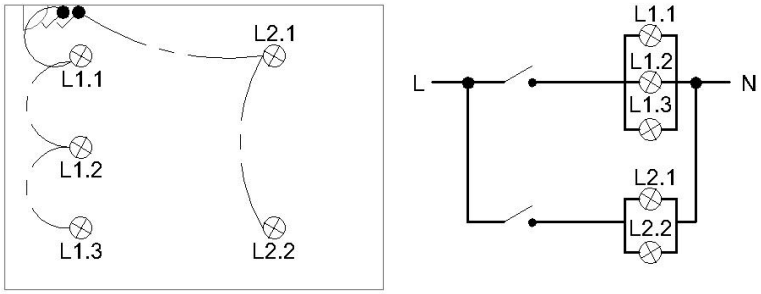


Balanced layout and size	5
Correctness	5
Lettering	5
Line work and neatness	5

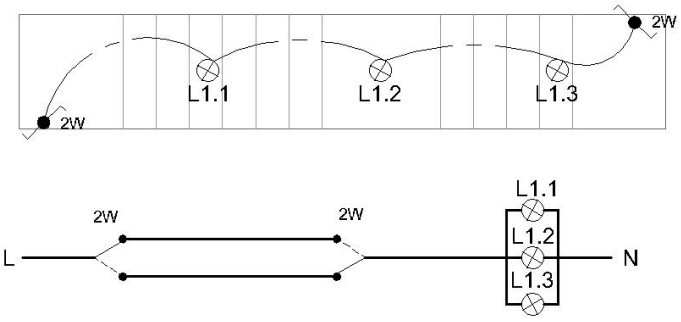
[20]

QUESTION 5: WIRING OF PREMISES

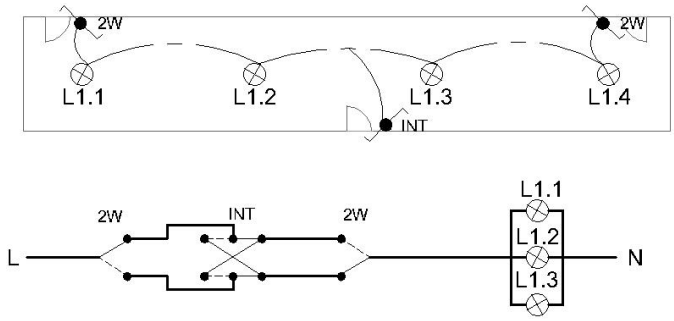
5.1



5.2



5.3



Balanced layout and size	4
Correctness	7
Lettering	5
Line work and neatness	4

[20]

TOTAL: 100

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