



Manchester Metropolitan University

2020-2021 Block1 Examination Period

Faculty of Engineering

Department of Engineering

### Programme information

Programme: School Of Engineering Undergraduate Programmes

Level of study: 4

### Examination information

Unit code: 6E4Z0008

Paper title: Electrical Engineering Principles

Exam Duration: 2 HOURS

Instructions to Candidates on Page 2

## Instructions to Candidates

Answer **ALL** questions.

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1. (a) Applying Ohm's law to the circuit shown in Figure Q1a, find the total resistance and the current  $I$ . (5 Marks)

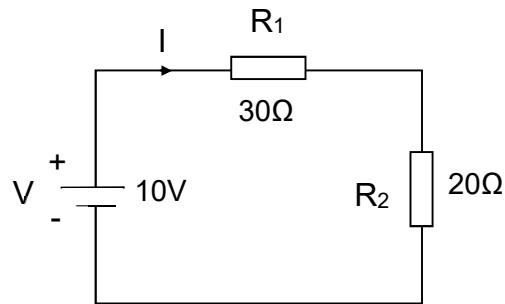


Figure Q1a

- (b) For the circuit shown in Figure Q1b:
- (i) Apply Kirchhoff's current law to the circuit and show any equations. (5 Marks)
  - (ii) Apply Kirchhoff's voltage law to each loop and show any equations. (5 Marks)
  - (iii) Using the results obtained from parts (i) and (ii), calculate the branch currents  $I_1$ ,  $I_2$  and  $I_3$  in Figure Q1b. (5 Marks)

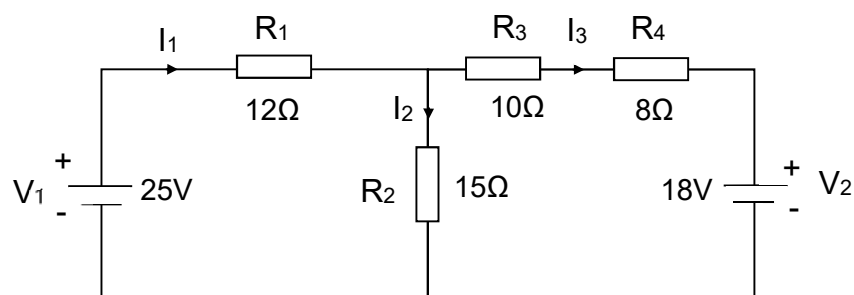


Figure Q1b

(Total 20 Marks)

**END OF QUESTIONS**