Question 2 (6 marks)

A tram is powered by four identical electric motors. Each motor has a maximum power output of 30.0 kW. The motors are connected in parallel and powered by 6.00×10^2 V DC from overhead power lines. When the motors are operating at maximum power output there is a back emf of 5.20×10^2 V with an internal resistance of 1.39 Ω.

(a) Calculate the current drawn by each motor when operating at maximum power output.

(4 marks)

Answer _____ A

(b) After operating for a while one of the motors becomes jammed. Describe, with a reason, what happens to the current in that motor when it becomes jammed. (2 marks)

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