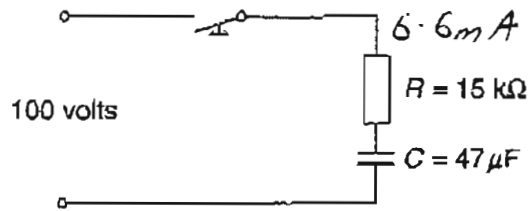


Question 20 (5 marks)

An electrical circuit is shown.



Calculate, showing all working:

- (a) the time constant for the circuit; 2

$$C = IT, \quad T = C \div I$$
$$= 47 \mu\text{F} \div 6.6 \text{ mA}$$
$$=$$

- (b) the maximum circuit current; 1

$$V = IR$$
$$I = 100 \text{ V} \div 15 \text{ k}\Omega = 6.6 \text{ mA}$$

- (c) the value of resistance to be added to change the time constant to one second. 2

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