2604E220

Candidate's Seat No :_____

B.Sc. Sem.-2 (NEP) Examination

DSC-M-ELE-123 (T)

Electronics

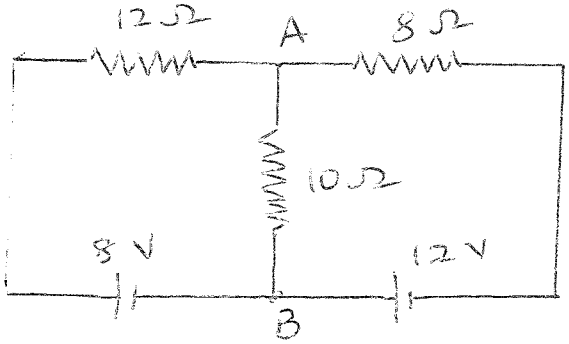
Time : 1-00 Hours] **April 2024** **[Max. Marks : 25**

Instructions : (1) Figures to the right indicate Full Marks of the questions.

(2) Symbol used their usual meaning.

1 (a) State the Norton's theorem and explain how to nortonise a given circuit. 7

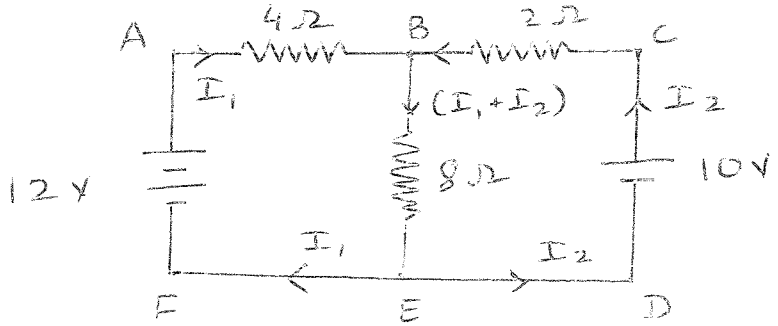
(b) Use Kirchhoff's laws to find the magnitude and direction of current flow through the 10Ω resistor in the following circuit : 3



OR

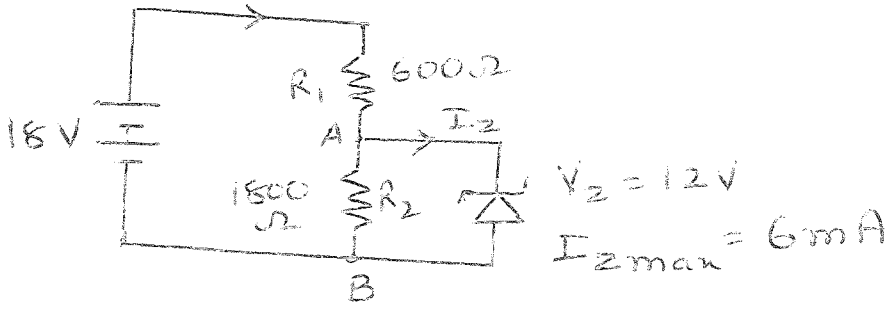
(a) Write a note on ideal constant-voltage source and ideal constant-current source. 5

(b) Using Kirchoff's laws, calculate the branch currents in the network of the following figure : 5



2 (a) Describe the construction of a zener diode and explain zener breakdown. Also explain the V/I characteristics and uses of a zener diode. 7

(b) Determine if the zener diode of the following figure is biased properly. If so, find Iz and the power dissipated by the diode : 3



OR

[P.T.O.

(a) Describe the construction and applications of LED. 7

(b) What is avalanche photodiode? What is its application? 3

3 Attempt any five out of six : 5

(1) State the maximum power transfer theorem.

(2) While finding Rth, all voltage sources are removed, but not their ..... resistances.

(3) Name any two applications of a thermistor.

(4) Draw the schematic symbol and a simple equivalent circuit for a varactor.

(5) A tunnel diode has a doping density about ..... times higher compared to an ordinary junction diode.

(6) Write the relation between frequency and wavelength of light.