No. of Printed Pages : 3

ET-202(B)

B.Tech. Civil (Construction Management) / B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2016

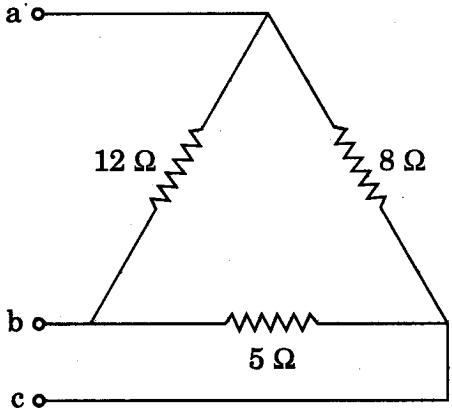
00818

ET-202(B) : PRINCIPLES OF ELECTRICAL SCIENCES

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***five*** *questions. Each question carries equal marks. Use of calculator is permitted.*

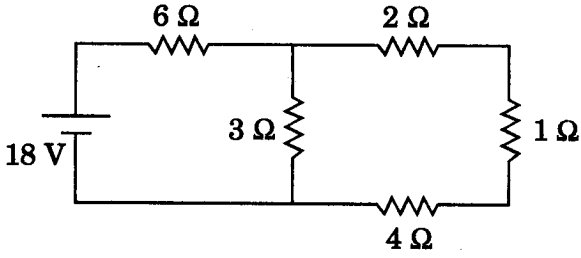
1. (a) Find the equivalent star of the delta configuration shown in the following figure.



Also write the formula for converting star connection into equivalent delta. 7

(b) What are the disadvantages of low power factor in A.C. circuits ? How can power factor be improved ? 7

2. (a) Using Thevenin's theorem, find the current flowing through the 1 Ω resistor. Also draw the Thevenin's equivalent circuit across the 1 Ω resistor clearly showing the open circuit voltage. 7



(b) Derive the relation between line current and phase current, line voltage and phase voltage for a delta connected 3-phase network. 7

3. (a) What are instrument transformers ? Explain voltage and current measurement in a high voltage system with the help of instrument transformer, using connection diagrams. 7

(b) Explain the various excitation schemes for D.C. motors by providing proper circuit connection diagrams. 7

4. (a) Explain various kinds of single-phase motors and their appropriate applications. 7

(b) Explain the construction, working and application of a permanent magnet moving coil instrument. 7

5. (a) Give the circuit diagram of a Voltage Regulator with Current Booster and explain its operation. 7

(b) Discuss the circuit, operation and principle of Peak Response type A.C. voltmeters. 7

6. (a) Discuss a basic Operational Amplifier and explain its various applications in short. 7

(b) Give the circuit connections of a 4-bit up counter and a 4-bit down counter. Also give waveforms of each. 7

7. (a) Draw the architecture of 8085 microprocessor clearly naming its various blocks, inputs and outputs. 7

(b) Draw the circuit of a partially decoded memory system and also draw the concerned memory map. 7