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D – 5356

Reg. No. :

Name :

**Combined First and Second Semester B.Tech. Degree
Examination, March 2018
(2013 Scheme)**

13.108 : BASIC ELECTRICAL ENGINEERING (ABCHMNPSTU)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** marks :

1. What is the difference between electrical circuit and electrical network ?
2. What is Lenz's law ?
3. Define RMS value.
4. In a certain three-wire star connected generator, the phase voltages are 2 kV. Find out the magnitudes of line voltages ?
5. What is the need for high voltage transmission ?
6. What is the relationship between line voltage and phase voltage in star and delta networks ?
7. What are the differences between three-phase and single-phase induction motor ?
8. What are the applications of DC series motor ?
9. Give the examples of LT and HT consumers.
10. What is earthing ?

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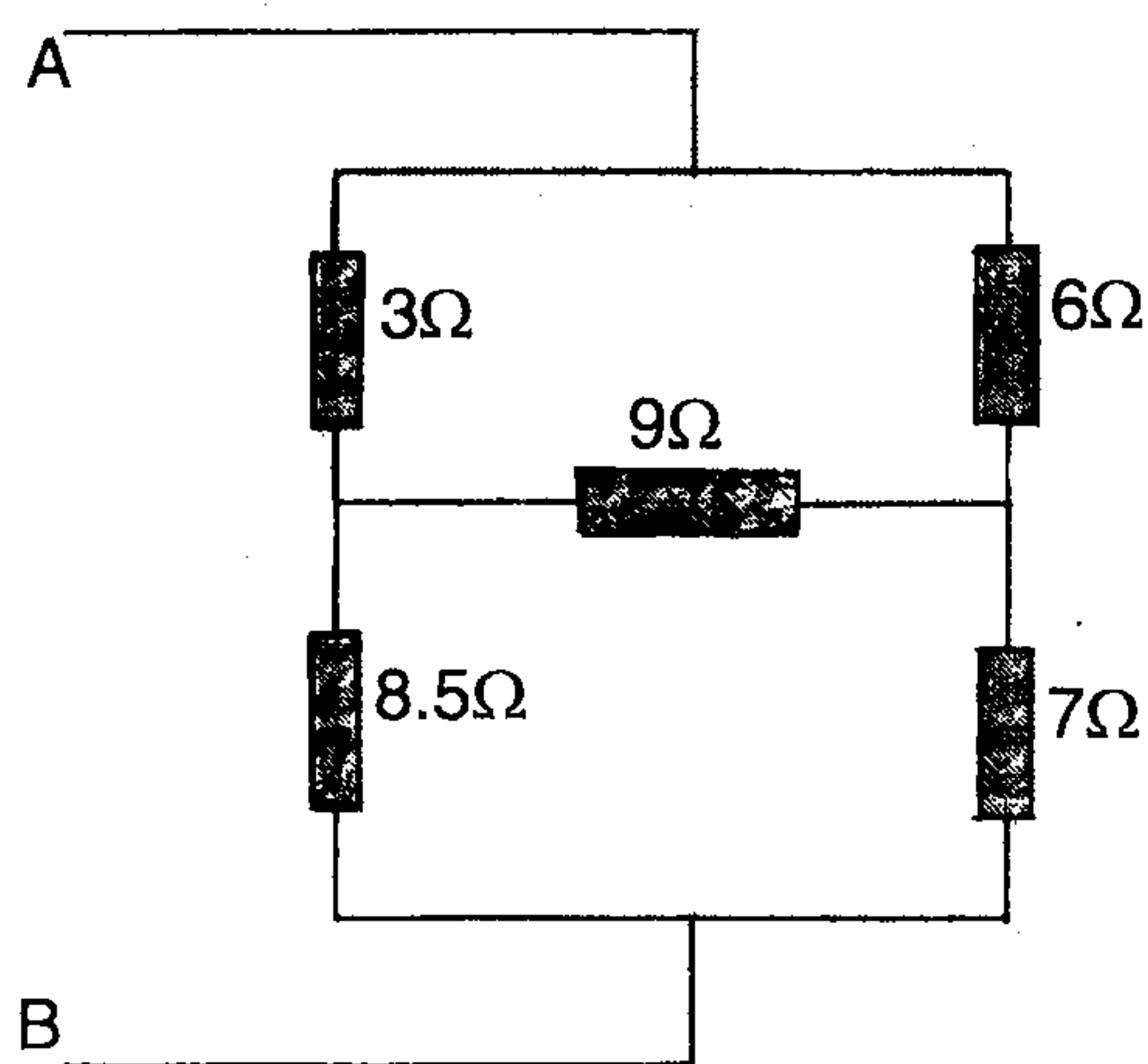


PART – B

Answer **any one full** question from **each** Module. **Each** question carries **20** marks :

Module – I

11. a) Define the following terms : 10
 i) MMF
 ii) Magnetic field
 iii) Flux
 iv) Flux density
 v) Reluctance.
- b) Find the total resistance between the terminals A and B for the network shown in figure. 10



OR

12. a) Define statically induced and magnetically induced emf and write the differences between two emfs. 10
 b) A series RL circuit is connected to a 110-V ac source. If the voltage across the resistor is 85 V, find the voltage across the inductor. 10

Module – II

13. a) Derive the expression for power in a three phase circuit. 10
 b) Explain the construction and principle of a dynamometer type wattmeter. 10

OR

14. a) What is the necessity of improving power factor in power system ? 8
 b) Draw the layout of hydroelectric power plant and explain its operation. 12



Module – III

15. a) Derive the EMF equation of a single transformer. 10
- b) A 6600/400 V, 50 Hz, single phase core type transformer has a net cross-sectional area of the core of 428 cm^2 . The maximum flux density in the core is 1.5 tesla. Calculate the number of turns in the primary and secondary windings. 10

OR

16. a) Explain the constructional details of DC generator. 10
- b) Explain speed-torque characteristics of three phase induction motor. 10

Module – IV

17. a) What is the necessity of earthing ? Explain different types of earthing. 10
- b) Explain different types of tariff schemes. 10

OR

18. a) Explain the principles of operation of lead-acid batteries. 10
- b) Briefly explain the characteristics of the following : 10
- i) incandescent and
 - ii) fluorescent.
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