PVP 14

Code: CE2T5, ME2T5

# I B.Tech - II Semester – Regular Examinations – JULY 2015

# BASIC ELECTRICAL & ELECTRONICS ENGINEERING
## (Common for CE & ME)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11x 2 = 22 M

1. a) What is wind power? Discuss various factors on which the power depends.
   b) What is the importance of economizer?
   c) Define specific resistance.
   d) If three inductors $L_1$, $L_2$ and $L_3$ are placed in parallel, what is its $L_{eq}$?
   e) For the given circuit shown in Figure-1, calculate the value of unknown resistance R when the applied voltage is 20V and the total power dissipated in the circuit is 70 Watts.

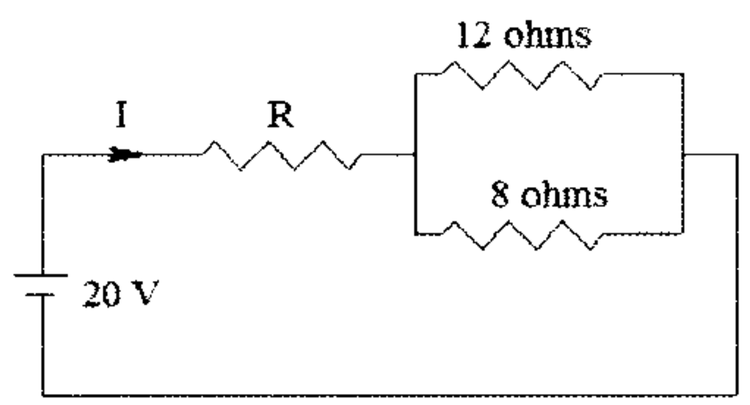



Figure-1

   f) Why an induction motor is called an Asynchronous Motor?
   g) Mention any two applications of shaded pole induction motors.

h) Differentiate between ideal and practical transformer.

i) Mention the types of losses in a transformer.

j) Mention any two applications of diode and transistor.

k) Explain the principle of a Zener Diode.

## PART – B

Answer any ***THREE*** questions. All questions carry equal marks. 3 x 16 = 48 M

2. a) Write short notes on 9 M

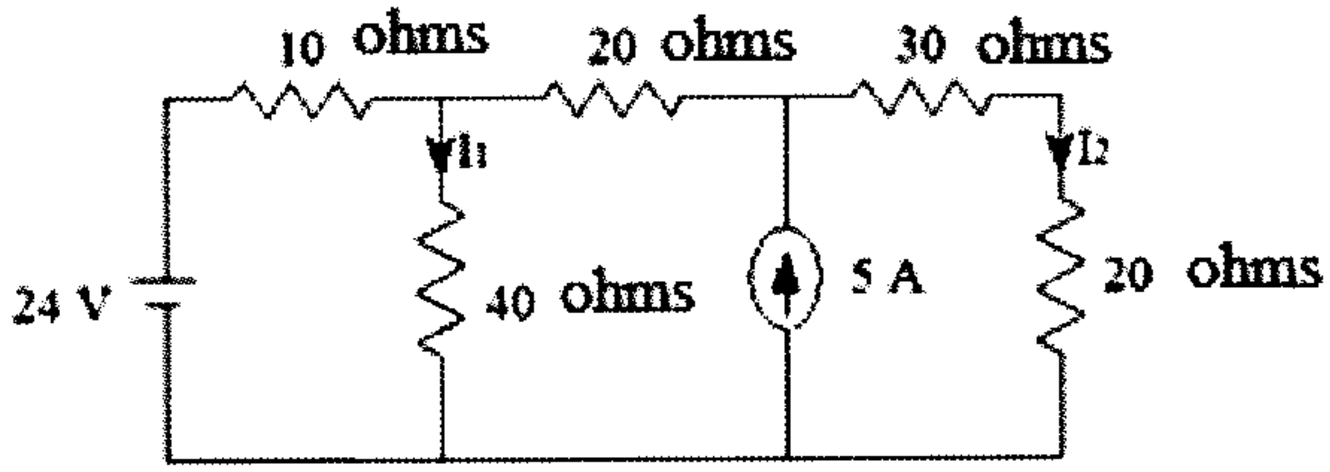
i) Condenser

ii) Feed Water System

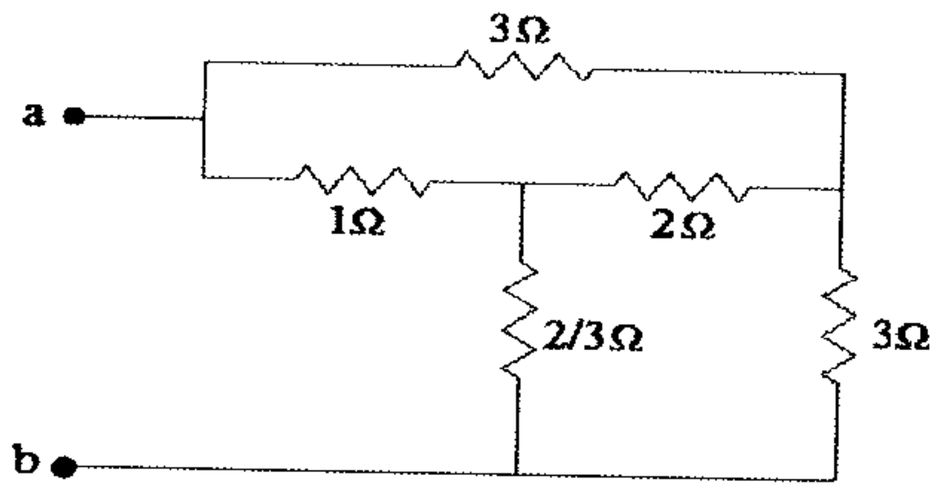
iii) Cooling Tower.

b) Draw a typical layout of a gas turbine power plant and describe the function of different components of this plant. 7 M

3. a) Determine the currents I1 and I2. All resistances are in ohms. 8 M



b) For the given resistive network, calculate the equivalent resistance between a & b terminals. 8 M




4. a) With a neat sketch, explain the operating principle of a 3-phase induction motor. And derive the torque equation. 8 M

b) Explain the operating principle of universal motor and draw its speed-torque characteristics. 8 M

5. a) With neat phasor diagrams, explain the principle of operation when the transformer is operating under No-Load and Resistive Load. 8 M

b) Give the constructional details and principle of operation of single phase welding transformer. 8 M

6. a) Explain the V-I characteristics of P-N Junction Diode. 5 M

b) Give the constructional details of N-P-N Junction Transistor. 5 M

c) Explain the operation of a transistor as a
i) Switch and ii) Amplifier. 6 M