PVP 14

Code: CE2T5, ME2T5

I B.Tech - II Semester - Regular / Supplementary Examinations – May 2017

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 are the important primary sources of energy for the generation of electrical energy?

b) Which device is used to harness electrical energy for solar energy? What is photo voltaic effect?

c) Why the total capacitance decreases when the capacitors are connected in series across a voltage source?

d) Based on what factor the circuit elements are classified? Why the name voltage source?

e) How the three phase induction motors are classified based on the construction of rotor? Which type of Induction motor is used for high inertia loads?

f) Is single phase induction motor a self start machine? Give two applications of single phase induction motor.

g) What are the parameters that does not change from input to the output of a transformer?

h) How the welding transformer is different from the conventional transformer?

i) Define slip and give the expression for slip of three phase induction motor.

j) What is the zener diode and represent its symbol?

k) What are the three ways a transistor can be connected in a circuit?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) A 10Ω resistor is in series with a parallel combination of two resistors of 15Ω and 5Ω. If the constant current in the 5Ω resistor is 6 A. What is the total current from the source? 6 M

b) Derive the equivalent star connected resistances for the delta connected resistances. 10 M

3. Explain the function of each component of the hydro electric plant with the help of a neat sketch. 16 M

4. a) Derive the expression for the voltage regulation of a transformer for leading and lagging loads. 10 M

b) A 2300/230V single phase transformer has the primary and secondary winding resistances of 2Ω and 0.02 Ω, respectively. Its iron loss at normal supply voltage is 600W. Calculate the secondary current at which maximum efficiency occurs. 6 M

5. Draw the torque slip characteristics of three phase induction motor and give the expressions for full load, starting and maximum torques derived from the expression of torque under running conditions. 16 M

6. a) With the help of neat circuit diagram and waveforms, explain the operation of full wave bridge rectifier. 8 M

b) Draw the input and output characteristics of Common Emitter Connection of transistor. 8 M