

## Question Bank (G scheme)

Name of subject: Industrial Electronics & Applications

Subject code: 17541

Unit Test: I

Semester: IE5G

Course: INDUSTRIAL ELECTRONICS

### **CHAPTER1: MODERN POWER DEVICES & PROTECTION CIRCUITS (16 marks)**

#### **3 marks**

- 1) List three modern power devices. Draw symbols of each.
- 2) State the need of snubber circuits.
- 3) State the need of series connection. Draw dynamic equalizing circuits.

#### **4 marks**

- 4) Describe parallel connections of SCR.
- 5) Describe how SCR can be protected from over voltage with suitable labeled circuit diagram?
- 6) Describe the working of SIT with constructional diagram.
- 7) Draw the constructional diagram of MCT. Explain the operating principle of MCT.
- 8) Draw and explain the working of crowbar protection circuit.
- 9) Draw the basic diagram for:  $di/dt$  protection and  $dv/dt$  protection.

### **CHAPTER 2: ADVANCED CHOPPERS ( 16 marks)**

#### **3 marks**

- 10) Draw and describe the basic circuit of step-down chopper.
- 11) Compare step up & step down chopper on the basis of configuration, output voltage & quadrant of Operation.
- 12) Draw circuit & quadrant diagram for four quadrant chopper

#### **4 marks**

- 13) List the types of choppers on the basis of operation quadrants. What is the effect of duty cycle on output voltage?
- 14) Draw and describe the working of class A chopper using SCR.
- 15) Describe the operation of chopper for regenerative application with circuit diagram.
- 16) Draw the circuit diagram of Jones chopper and describe operation.
- 17) Describe the operation of Morgan's chopper with circuit diagram.

### **CHAPTER 3: ADVANCED INVERTERS (20 marks)**

**3 marks**

- 18) Classify inverters on the basis of configuration & commutation circuits.
- 19) Draw circuit diagram and waveform of single phase Cycloconverter.
- 20) Give comparison between series & parallel inverter.

**4 marks**

- 21) Draw and describe Half Bridge inverter with Resistive Load.
- 22) Describe Series inverter with output waveforms.
- 23) Describe operation of Push pull Inverter with R- load, with circuit diagram and waveforms.
- 24) Distinguish between full bridge and push-pull inverter with respect to number of transistors, output transformer required, efficiency and current rating.
- 25) Draw the circuit diagram of full bridge Inverter. Describe the operation of full bridge Inverter with output voltage waveforms.
- 26) Draw the circuit diagram of parallel inverter and describe the operation.  
Draw circuit diagram and waveform of single phase Cycloconverter