SUBJECT WISE QUESTION
SEM – 5TH
SUBJECT- POWER ELECTRONICS AND PLC

1ST CHAPTER –
UNDERSTAND THE CONSTRUCTION AND WORKING OF POWER ELECTRONIC DEVICES.

SHORT QUESTION:-

1. What is Latching current?
2. What is Holding current?
3. What is difference between SCR and Thyristor?
4. Draw the V-I Characteristics of Thyristor?
5. When a gate circuit is removed from a conducting SCR , what will happen to the SCR?
6. What is the function of Pulse Transformer?
7. What are the Turn On methods of Thyristor?
8. Why Inductor and Capacitor is Connected across the gate terminal of SCR?
9. Define natural Commutation and Forced Commutation?
10. What is Snubber Circuit?
11. Define Rise time?
12. Define delay time?
13. Define peak time?
14. Define reverse recovery time (t_{rr}) ?
15. What is TRIAC?
16. What is GTO and draw its Symbol?
17. What is IGBT ?
18. Define Firing circuit?

LONG QUESTION:-

1. Draw circuit diagram and Explain the V-I characteristics of the Thyristor?.
2. Show the two transistor model of SCR and Explain its operation?
3. Explain switching characteristics of SCR with necessary diagram?
4. Explain construction and Working principle of MOSFET?
5. Discuss dv/dt and di/dt protection of Thyristor?
6. Explain three turn on methods of Thyristor?
7. Explain the over-voltage and over-current protection of Thyristor?
8. Explain working of RC firing circuit?
9. Draw circuit diagram with wave shape and explain UJT triggering?
10. Explain resonant pulse commutation of thyristor?

2ND CHAPTER:-
UNDERSTAND THE WORKING OF CONVERTERS, AC REGULATORS AND CHOPPERS

SHORT QUESTION:-

1. Define phase angle control?
2. What are the advantages of Free Wheeling Diode?
3. Write four application of phase controlled Rectifier?
4. What is the difference between uncontrolled rectifier and controlled rectifier?
5. Write four application of Chopper?
6. Define class A Chopper?
7. Define class B Chopper?
8. Define class C Chopper?
9. Define class D Chopper?
10. Define class E Chopper?
11. Define Semi Converter?
12. Write Four application of AC regulator?

LONG QUESTION:-

1. Explain single phase full wave converter with R-L load, with circuit diagram?
2. Derive the expression for O/P voltage and current of single phase half wave phase controlled rectifier for R-L load?
3. Explain the working of a half-wave converter with R-L load with and without freewheeling diode. Show the O/P wave forms under the above use?
4. Explain the principle of operation of single phase half-controlled converter circuit with R-load?
5. What is Chopper? Explain the working of a step-down chopper with neat diagram?
6. Explain the principle of operation of step-up chopper?
7. Explain working of Type-E chopper?
8. Explain the control strategies of Choppers?
9. With a neat circuit diagram and wave shape, discuss single phase full wave AC regulator?
10. With necessary diagram explain the bridge converter circuit ?

3rd CHAPTER :- UNDERSTAND THE INVERTERS AND CYCLO-CONVERTERS

SHORT QUESTION:-

1. Define Inverter?
2. Define Series Inverter?
3. Define Parallel Inverter?
4. Classify Inverter.
5. Define Cyclo converter?
6. Define Step-up and Step-down Cyclo converter?

7. Write Four application of Inverter?
8. Write four application of Cyclo-converter?

LONG QUESTION:-

1. Describe the operation of single phase voltage source full bridge inverter with resistive load?
2. Explain single phase voltage-source series inverter?
3. Describe the operation of voltage-source parallel inverter circuit?
4. Describe working of single phase to single phase Step-down cyclo-converter?
5. Explain the principle of operation of single-phase to single phase step-up Cyclo-converter?
6. Explain with a neat circuit diagram, step-up and step-down midpoint cycloconverter?
7. Explain the basic principle of Cyclo-converter

4th CHAPTER:-

UNDERSTAND APPLICATIONS OF POWER ELECTRONIC CIRCUITS

SHORT QUESTION:-

1. Define SMPS?
2. Define UPS?
3. What is the use of UPS?
4. What is SMPS and why it is preferred in comparison to linear regulator?
5. What are the factors affecting the speed of DC Motors?
6. What are the factors affecting the speed of AC Motors.

LONG QUESTION:-

1. Explain the principle and operation of a UPS system?
2. What are the advantages and disadvantages of Nickel-Cadmium battery used in UPS?
3. Explain the operation of speed control of an induction motor by stator frequency control?
4. Explain the operation of speed control of an induction motor drives by stator voltage control?
5. Explain single phase full converter DC drive with circuit diagram?
6. Explain Battery charger circuit using SCR with the help of a diagram?
7. Explain SMPS working & write its applications.

5th CHAPTER :-

PLC AND ITS APPLICATIONS

SHORT QUESTION:-

1. Define PLC?
2. What are the the advantage and disadvantages of PLC?
3. Draw the symbols of input and output in ladder diagram?
4. What is SCADA and DCS?
5. What is the basic principle of PLC?
6. What are the PLC manufactures?
7. Write the components of PLC?
8. What are counters and timers?

LONG QUESTION:-

1. Explain in details the block diagram and components of PLC?
2. Draw the ladder diagram of Star delta starter?
3. Explain the ladder diagram of induction motor?
4. Explain the operation details of traffic light and also draw the ladder diagram?
5. What is timer and counters? Describe in details the types of counter and timer?
6. Explain the block diagram of DCS and Architecture of DCS?