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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(EE)/(Pow System) (Sem.-1)
ADVANCED POWER ELECTRONICS
Subject Code : ELE-503/PEE-503
M.Code : 36001

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

- Q1. a) Explain reverse recovery characteristics of diode. Hence, draw their characteristics curves.
- b) Why simultaneous firing of thyristor is required? Explain.
- Q2. a) What are applications of series parallel connections of diodes? Illustrate with examples,
- b) Compare the characteristics of thyristor, UJT, PUJT and DIAC.
- Q3. a) Compare the applications of BJT, MOSFET, SIT IGBT based on their operating characteristics.
- b) A thyristor has a junction capacitance of 50 PF. The charging current is limited to 20 mA. What is the value of dv/dt ? If this is to be limited to 250 V/ μ s. Determine the value of capacitance to be connected across the thyristor?
- Q4. a) Write the principle of phase control converters. Draw and explain behaviour of three phase full wave cycloconverter.
- b) What are reasons for poor power factor in converter? Explain method for overcoming it.
- Q5. a) Classify choppers. Design a chopper circuit for DC Shunt motor speed control.
- b) Draw and explain the operation of a three phase dual converter. Draw its wave forms also.



Q6. a) What are performance parameter of PWM inverters? Explain in brief.

b) A three phase fully controlled bridge converter is feeding a load drawing a constant and ripple free load current of 10A at a firing angle of 30° . Determine the approximate Total Harmonic Distortion (%THD) and the rms value of fundamental component of the input current.

Q7. a) What are Boost and Buck converter? Where are they preferred?

b) Write the principle of PWM Control technique of voltage.

Q8. Write Short notes on :

a) AC Voltage regulator

b) Harmonic reduction

c) Bridge inverter

d) Chopper

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.