

Seat No.	
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SV-448

Total No. of Pages : 3

T.E. (E & TC) (Part - III) (Semester - V)
Examination, May -2019
POWER ELECTRONICS
Sub. Code : 66317

Day and Date : Monday, 6 - 05 - 2019

Total Marks : 100

Time : 2.30 p.m. to 5.30 p.m.

- Instructions :
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Assume suitable data wherever if necessary.

SECTION - I

Q1) Solve any two.

[16]

- a) Draw and explain the output characteristics of n-channel MOSFET.
- b) What is the necessity of connecting SCR's in series? What are the problems associated with series connections of SCR. How are they eliminated?
- c) Draw a neat circuit diagram of TRIAC light dimmer & Draw the waveforms of $\alpha = 0^\circ$ and $\alpha = 90^\circ$.

Q2) Solve any two.

[16]

- a) Draw and explain circuit diagram for synchronised VJT triggering.
- b) Describe different turn-off methods of SCR? Explain class-C commutation method with waveforms.
- c) Explain in detail the power ratings of SCR.

P.T.O.

Q3) Write notes on any three.

- a) $\frac{dv}{dt}$ & $\frac{dI}{dt}$ protections:
- b) IGBT
- c) PUT
- d) Comparism between 1- ϕ ϕ 3- ϕ Rectifiers
- e) Resonant Turn-off

SECTION - II

Q4) Solve any two.

[16]

- a) With the help of neat circuit diagram and waveforms explain briefly the operation of 3- ϕ bridge inverter.
- b) List different voltage control and prism techniques used in 1- θ inverter.
- c) A step down chopper has resistive load of $R=10\text{-}\Omega$ & input voltage $v=200\text{v}$. The chopper frequency is 1KHz if the duty cycle is 50% calculate.
 - i) Average output voltage
 - ii) RMS output voltage
 - iii) Chopper efficiency
 - iv) Effective input resistance

Q5) Solve any two.

[16]

- a) With the circuit diagram and output waveforms, explain the principle of operation of step-down chopper.
- b) With block diagram, explain operation of PLC.
- c) With block schematic, explain operation & applications of Induction heating.

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[18]

Q6) Write notes on any three.

- a) Zero Voltage Switch
- b) UPS
- c) Jones chopper
- d) Harmonic elimination in Inverter.
- e) Ladder diagram with example.

