

SUBJECT: POWER DEVICES AND MACHINES

Day : Tuesday
Date : 14/05/2019

S-2019-2703

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N. B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labeled diagram **WHEREVER** necessary.
 - 4) Assume suitable data, if necessary.
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Q. 1 Explain power diode with the help of structure and switching characteristics. (10)

OR

Draw and explain Gate drive circuit for IGBT. (10)

Q. 2 Describe the various turning ON methods of SCR, justify SCR is a current operated device. (10)

OR

Explain TRIAC with its construction, operational characteristics and triggering modes. (10)

Q. 3 With neat circuit diagram and operational waveforms explain the working of single phase fully controlled bridge converter. (10)

OR

Explain three phase semi converter with the help of waveform (10)

Q. 4 Explain the operations of a step-up chopper, derive the expression for average output voltage. (10)

OR

Write a note on 'Switched Mode Power Supply' (SMPS). (10)

Q. 5 With the help of construction and working explain AC motor. (10)

OR

Explain servomotor in detail. (10)

Q. 6 Explain functioning of On-Line and Off-Line UPS using block schematic. State their merits and demerits. (10)

OR

Discuss electric heating and electric welding applications. (10)

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