Total No. of Questions : 4]

SEAT No. : [ ]

PB-132

[Total No. of Pages : 2

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T.E. (E&TC Engineering) (Insem)

POWER DEVICES & CIRCUITS

(2019 Pattern) (Semester - II) (304194)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4.***
2) ***Neat diagrams and waveforms must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of nonprogrammable calculator is allowed.***
5) ***Assume Suitable data if necessary.***

Q1) a) Draw construction diagram of power MOSFET? Explain V-I characteristics of power MOSFET. **[7]**

b) Draw V-I characteristics of SCR? Explain the following w.r.t. SCR & write their typical values. **[8]**

i) Break over voltage

ii) Latching current

iii) Holding current

OR

Q2) a) Draw & explain synchronized UJT triggering circuit with suitable waveforms. **[7]**

b) Draw and explain gate drive circuit for IGBT. **[5]**

c) Compare SCR with GTO. **[3]**

Q3) a) What is commutation? Explain with diagram natural & forced commutation. **[5]**

b) Draw & explain single phase full converter for R-L load with circuit diagram and voltage & current waveforms. **[10]**

P.T.O.

OR

Q4) a) Draw & explain three phase fully controlled converter with R load with circuit diagram & waveforms. **[9]**

b) A single phase semi-converter is operated from the 120V, 60Hz AC input supply. The load is resistive of 10 Ohm. If the firing angle is 30 degree. Calculate : **[6]**

i) Average o/p voltage

ii) Average o/p current

iii) RMS o/p voltage

iv) RMS o/p current

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