

Code No: **R42101****R10****Set No. 1****IV B.Tech II Semester Supplementary Examinations, April - 2018****INDUSTRIAL ELECTRONICS****(Electronics and Instrumentation Engineering)****Time: 3 hours****Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) Discuss in detail about the inverting and non-inverting modes of Op-Amp. [8]
b) Explain in detail about Darlington Emitter Follower. [7]
- 2 a) With a neat sketch explain about operation of voltage regulation. [8]
b) Differentiate between Series and Shunt type Linear Voltage Regulators. [7]
- 3 a) Write about the 3-terminal IC voltage regulators. [7]
b) Draw and explain about Switched Mode voltage regulator. [8]
- 4 a) Discuss in brief about the commutation techniques of Thyristors. [8]
b) Explain the dynamic characteristics of SCR in terms of ON and OFF timings of gate. [7]
- 5 a) Draw the circuit diagram and waveforms of input current and output voltage of a single phase full wave ac voltage controller with resistive load. [8]
b) A single phase full wave ac voltage controller operated with 230volt/50Hz input drives $4\ \Omega$ load resistance calculate
i) RMS output current for $\alpha = 45$ degrees and its maximum value α
ii) AC output power at $\alpha = 45$ degrees and its maximum value α
iii) Power factor at $\alpha = 45$ degrees. [7]
- 6 a) Discuss in detail about Firing Circuits. [7]
b) Discuss about the following:
i) Single transistor chopper
ii) Two transistor chopper [8]
- 7 a) Discuss the principle and operation of ARC welding with neat sketch. [7]
b) Explain briefly about different types of Electronic timers. [8]
- 8 a) Write the merits and applications of High frequency heating. [8]
b) Discuss in detail about the Thermal losses and its Applications. [7]