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B-297-2019

FACULTY OF SCIENCE

B.Sc. (Sixth Semester) EXAMINATION

MARCH/APRIL 2019

(CGPA Pattern)

ELECTRONICS

Paper XV

(Power Electronics-II)

(Friday, 12-4-2019)

Time : 10.00 a.m. to 12.00 noon

Time—2 Hours

Maximum Marks—40

- N.B. :-**
- (i) All questions are compulsory.
 - (ii) Use of log table and non-programmable calculator is permitted.
 - (iii) Figures to the right indicate full marks.

1. Attempt any four : 8
- (a) Define half-controlled rectifier.
 - (b) Draw the circuit diagram of half-controlled bridge rectifier in symmetrical configuration.
 - (c) What is thermistor ?
 - (d) What is step up chopper ?
 - (e) How are invertors classified according to connections ?
 - (f) What is LDR ?
2. Attempt any two : 8
- (a) Explain the working of half wave controlled rectifier with inductive load with a neat circuit diagram. Hence, find the expression for E_{dc} .
 - (b) With a neat circuit diagram explain the working of light activated turn-off circuit using DIAC, TRIAC and LDR.
 - (c) Draw the circuit diagram of basic chopper circuit and explain its action. Obtain formula for E_0 .
 - (d) Explain the working of Parallel Invertor in detail.

P.T.O.

3. Attempt any two : 8
- (a) Explain in detail working of step down chopper. Obtain an expression for E_{out} .
 - (b) With a neat circuit diagram explain working of light activated turn off circuit with facility 'off at dark'.
 - (c) With neat circuit diagram explain working of full wave midpoint circuit with resistive load. Obtain an expression for E_{dc} and I_{dc} .
 - (d) Explain the working of basic series inverter.
4. Attempt any one : 8
- (a) Draw the circuit diagram of half wave controlled rectifier with resistive load and explain its action. Obtain expressions for :
 - (i) E_{dc}
 - (ii) I_{dc}
 - (iii) E_{rms}
 - (b) Explain with neat circuit diagram working of phase control circuit for regulation of temperature.
5. Write short notes on any two : 8
- (a) Water level indicator
 - (b) Modified series inverter
 - (c) Control strategies in chopper
 - (d) Free wheeling diode.