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B—295—2019

FACULTY OF SCIENCE

B.Sc. (Sixth Semester) EXAMINATION

MARCH/APRIL 2019

(CBCS Pattern)

ELECTRONICS

Paper XV-A

(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) Figures to the right indicate full marks.

(iii) Use of log table and non-programmable calculator is permitted.

1. Attempt any four :

8

(a) What do you mean by extinction angle control ?

(b) Draw the circuit diagram of midpoint circuit with resistive load.

(c) What is chopper ?

(d) What is inverter ?

(e) What is time ratio control ?

(f) What is float switch ?

2. Attempt any two :

8

(a) With a neat circuit diagram explain the working of single phase full wave midpoint converter with inductive load.

(b) Explain in detail light activated turn off circuit.

(c) With a neat circuit diagram explain the working of single phase half controlled bridge rectifier with resistive load.

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3. Attempt any *one* of the following : 8
- (a) Describe working of single phase fully controlled bridge converter in the following *two* modes :
- (i) Rectifying mode
- (ii) Inverting mode
- Also sketch the following waveforms for $\alpha = 60^\circ$ and $\alpha = 135^\circ$.
- (b) Draw the circuit diagram of water level indicator. Explain its working in detail.
4. Attempt any *two* of the following : 8
- (a) Explain the operation of basic parallel inverter in detail.
- (b) Explain with a neat circuit diagram the working of step up chopper.
- (c) A dc chopper circuit connected to 100 V dc source supplies an inductive load having 40 mH in series with a resistance of 5 Ω . A free wheeling diode is placed across the load. The load current varies between 9 A and 11 A. Determine the time ratio of chopper.
5. Attempt any *one* of the following : 8
- (a) How are inverters classified ? Explain basic series inverter circuit with suitable waveforms. What are the drawbacks of series inverter ?
- (b) Explain with a neat circuit diagram the working of step down chopper and explain current limit control.

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