JNTUA UNIVERSITY
PREVIOUS QUESTION PAPERS

Code: 15A04606

R15

B.Tech III Year II Semester (R15) Regular & Supplementary Examinations May/June 2019

INDUSTRIAL ELECTRONICS

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) List out any two differences between intrinsic and extrinsic semi conductors.
(b) What are the applications of Zener diode?
(c) What do you understand by 'Emitter' efficiency?
(d) What are the conventions of polarities of voltages and currents?
(e) What is half-wave rectifier?
(f) What is 'Dynamic emitter resistance?
(g) What is principle involved in 'Induction heating'?
(h) What are the electrodes used in 'Dielectric heating'?
(i) List out the properties of 'Ultrasonic waves'.
(j) What is ultrasonic drying?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 With a neat diagram, explain the operation of LED? Also, give its advantages and applications.

OR

3 Discuss in detail the Crystalline structure of semiconductors and also give its properties.

UNIT – II

4 Discuss in detail about current components in transistors with necessary diagram.

OR

5 Explain the characteristics of CE configuration of PNP junction transistor.

UNIT – III

6 Classify the voltage regulators. Also, draw the diagram of bridge rectifier and explain its operation, advantages and limitations.

OR

7 What is the principle involved in automatic voltage regulator and discuss about simple DC voltage stabilizer using zener diode.

UNIT – IV

8 List out different types of resistance welding and explain in detail about any two of them.

OR

9 Explain in detail about the high frequency power source of induction heating.

UNIT – V

10 Explain about the physico-chemical effects of ultrasonics and the chemical effects of ultrasonics.

OR

11 Discuss the generation of ultrasonic waves and discuss about ultrasonic stroboscope.

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PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Distinguish between intrinsic semiconductor and extrinsic semiconductor.

(b) Explain about majority carriers in n type semiconductors.

(c) Define emitter efficiency.

(d) Explain about the static characteristic curves of CB configuration.

(e) Distinguish between full wave rectifier and bridge rectifier.

(f) Give the classification of type of filters.

(g) Mention the applications of induction heating.

(h) Explain the principle of resistance heating.

(i) What are the chemical effects of ultrasonics?

(j) Define ultrasonic dying.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Explain about the formation of PN junction.

OR

3 Confer the working of LED and mentions its applications.

UNIT – II

4 Explain the working of transistor as an amplifier.

OR

5 Explain the input and output characteristics of a transistor in CB configuration.

UNIT – III

6 Describe the working of full wave rectifier with and without filters.

OR

7 Derive an expression for the ripple factor in a half wave rectifier.

UNIT – IV

8 Illustrate the process of resistance welding and energy storage welding.

OR

9 Mention the applications of dielectric heating.

UNIT – V

10 Discuss about Ultrasonic flaw detection and colloidal effect.

OR

11 Contrast about physico-chemical and thermal effects of ultrasonic.

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