Reg. No. :

Question Paper Code: 31206

B.E. / B.Tech. DEGREE EXAMINATION, NOVEMBER 2015

Second Semester

Civil Engineering

01UEE206 - BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Mechanical Engineering)

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What are the limitations of ohm's law?

2. What is the use of copper shading band in energy meter?

3. Define back emf in a dc motor.

4. Define transformation ratio.

5. Define peak inverse voltage in a diode.

6. Why transistor is called as current controlled device?

7. Convert the decimal number 139_{10} into its equivalent binary number.

8. What is a synchronous counter?

9. Define demodulation of a signal.

10. What are the basic types of communication systems?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) A line voltage of 400 V is applied to three phase star connected identical impedances each containing of a 4 Ω resistance in series with 3 Ω inductive reactance. Find (a) line current (b) total power supplied.   (8)

(ii) Explain the construction details and principle of operation of an attraction type moving iron instrument. (8)

Or

(b) (i) Find the average value, rms value and form factor of a periodic wave having the following values for equal time intervals changing suddenly from one value to the next. 0, 5, 10, 20, 50, 60, 50, 20, 10, 5, 0, -5, -10, etc. (8)

(ii) With a neat sketch explain the principle and operation of the instrument which is used to measure the electrical power consumed during a specific period. (8)

12. (a) Draw and explain the constructional details of a dc generator and also derive the emf equation. (16)

Or

(b) (i) Draw and explain the core type and shell type transformers. (6)

(ii) Explain the principle of operation of single phase induction motor based on double field revolving theory. (10)

13. (a) (i) What is a Zener diode? Explain the operation of Zener diode and draw its characteristics. (8)

(ii) Explain the operation of a full wave rectifier with neat diagram. (8)

Or

(b) (i) Explain with neat diagram, input and output characteristics of a Common Base configuration of a BJT. (8)

(ii) Explain in detail about small signal CE amplifier. (8)

14. (a) (i) What are universal gates? Explain their principle of working with necessary truth table. (8)

(ii) Write short notes on RS-flip flop and D-flip flop. (8)

Or

(b) Write in detail about Analog to Digital converter and Full adder with necessary diagram. (16)

15. (a) Explain the principle of amplitude and frequency modulation. (16)

Or

(b) (i) With neat diagram, explain the basic components of satellite communication. (8)

(ii) Explain the block diagram of optical fiber communication systems. (8)

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