Reg. No. : | | | | | | | | | | |

Question Paper Code: 32306

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. State Kirchhoff's law.
2. What are the advantages of electromechanical measuring instruments?
3. Why single phase induction motor is not a self starting?
4. Give importance of commutator in D.C machine.
5. Compare PN junction diode and Zener diode.
6. What is meant by uncontrolled rectifiers?
7. Draw the symbol and truth table of EX-NOR gate.
8. What is a counter?
9. What is meant by modulation?
10. Define numerical aperture.

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) Explain the working of capacitor start single phase induction motor with suitable diagram. (8)

(ii) A single phase, 25*Hz* transformer has 50 primary turns and 600 secondary turns. The cross sectional area of the core is 400*sq.cm*. If the primary of the transformer is connected to 230*V* supply, find (a) the secondary induced emf (b) the flux density (peak) in the core. (8)

13. (a) With help of relevant circuit diagram explain the V-I characteristics of Zener diode (16)

Or

(b) Draw and explain the input and output characteristics of CB, CE and CC configuration in Bipolar Junction Transistor. (16)

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

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

Or

(b) Draw the block diagram of a TV transmitter and TV receiver. Explain its working in detail. (16)