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

# Question Paper Code: 21007

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 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. Define power and power factor.
2. How an ammeter and voltmeter are connected in a circuit? Give the reason.
3. Why series motor cannot be started without any load?
4. Why the transformer rating is in *kVA*?
5. What is doping of a semiconductor?
6. Why transistor is called as current controlled device?
7. Draw the symbol and truth table of EX-NOR gate.
8. What is a synchronous counter?
9. Define demodulation of a signal.
10. Define numerical aperture.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain in detail the errors, advantages and disadvantages of moving iron instruments. (6)

(ii) Explain the constructional details and principle of a dynamometer type wattmeter. (10)

Or

(b) (i) A line voltage of 400 *V* is applied to three phase star connected identical impedances each containing of a 4Ω resistance in series with 3Ω 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 ion instrument. (8)

12. (a) (i) Draw and explain the core type and shell type transformer. (6)

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

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) (i) Describe the working principle of Zener diode with neat diagram and also explain its V-I characteristics. (8)

(ii) Explain the operation of full wave bridge rectifier with neat sketch. (8)

Or

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

14. (a) Write in detail about analog to digital converter and full adder with necessary diagram. (16)

Or

(b) (i) Explain the operation of shift-right register. (8)

(ii) Explain the operation of successive approximation type ADC with a neat sketch. (8)

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 it working in detail. (16)

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