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

Question Paper Code: U2326

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

Second Semester

Civil Engineering

21UEE226- BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Regulations 2021)

(Common to Mechanical and Agriculture Engineering)

Duration: Three hours Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. Ohm's law is stated as CO1- U

   (a) V = IR (b) R = VI (c) I = VR (d) $V=I^2R$

2. What is the relationship between speed, back emf and flux? CO2- U

   (a) $N= E_b \Phi$ (b) $N = \Phi / E_b$ (c) $N\alpha E_b /\Phi$ (d) $\Phi \alpha N E_b$

3. A capacitor start, capacitor run single phase induction motor is basically a CO3- U

   (a) ac series motor (b) dc series motor

   (c) 2 phase induction motor (d) 3 phase induction motor

4. Which of the following is not a component of a stepper motor? CO4- U

   (a) Windings (b) Rotor and Stator (c) Commutator (d) Brush

5. The majority carriers of P-type semiconductor are _____ . CO5- U

   (a) Electrons (b) Holes (c) Electron-hole pair (d) all of the above

PART – B (5 x 3= 15 Marks)

6. Three resistors 4Ω, 12Ω and 6Ω are connected in parallel. If the total current taken is 12 A, Solve the current through each resistor. CO1- App

7. What is the basic principle of DC Motor & DC Generator. CO2- U

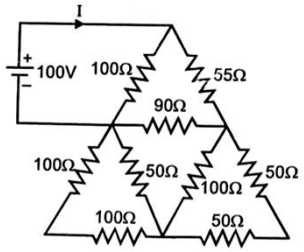
8. Mention the methods of starting of 3-phase synchronous motor. CO3- U

9. Outline types of AC servo motor. CO4- U

10. What is meant by data acquisition system? What are the types of DAS? CO5- U

PART – C (5 x 16= 80Marks)

11. (a) Solve the total current taken from the source. CO1-App (16)



Or

(b) Develop an expression for RMS value and average value of a sinusoidal waveform. CO1-Ana (16)

12. (a) Explain briefly about the construction of a DC Machines CO3-U (16)

Or

(b) Illustrate and explain the general layout of single phase transformer. CO3-U (16)

13. (a) Explain the working principle of Shaded pole induction motor. . CO3-U (16)

Or

(b) Explain the construction of hysteresis type Synchronous motor. CO3-U (16)

14. (a) Explain the Construction, Principle of operation and applications of AC servo motor. CO4-U (16)

Or

(b) Explain the Construction, Principle of operation and applications of Linear induction motor. CO4-U (16)

15. (a) Why is a Zener diode considered as a special purpose semiconductor diode? Draw the I-V characteristics of Zener diode. Describe briefly with the help of a circuit diagram. CO5-Ana (16)

Or

(b) Illustrate in detail the working of BJT in CE configuration with its input & output characteristics CO5-Ana (16)