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

Question Paper Code: R2326

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

Second Semester

Civil Engineering

R21UEE226- BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Regulations R2021)

(Common to MECH,AGRI & CHEMICAL Engineering branches)

Duration: Three hours Maximum: 100 Marks

Answer All Questions

PART A - (10 x 1 = 10 Marks)

1. The resistance of a 100 W, 200 V lamp is _____. CO1-U

   (a) 100 Ohm (b) 200 ohm (c) 400 ohm (d) 1600 ohm

2. Which one is considered as active element? CO1-U

   (a) Resistor (b) Inductor (c) Capacitor (d) Battery

3. What is the relationship between speed, back emf and flux? CO1-U

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

4. The ---------- converts the alternating EMF in to direct EMF CO1-U

   (a)Transformer (b)Commutator (c) Armature (d)None of the these

5. The starting torque of a capacitor start motor is CO1- U

   (a) zero (b) low

   (c) same as rated torque (d) more than rated torque.

6. A single phase motor generally used for small air compressor is CO1-U

   (a) capacitor start capacitor run motor (b) reluctance motor

   (c) universal motor (d) shaded pole motor

7. Which of the following is not a component of a stepper motor? CO1-U

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

8. Which motor is relatively free from mechanical and magnetic vibrations? CO1-U

(a) Shaded-pole motor (b) Universal motor

(c) Reluctance motor (d) Hysteresis motor

9. Extrinsic semiconductor has_____. CO1-U

(a) low conductivity (b) high conductivity

(c) high resistivity (d) none of the above

10. Which of the following diodes is operated in reverse bias mode? CO1-U

(a) P-N junction (b) Zener (c) Tunnel (d) Schottky

PART – B (5 x 2= 10 Marks)

11. State Kirchoff's voltage law. CO1-U

12. State faradays law of electromagnetic induction. CO1-U

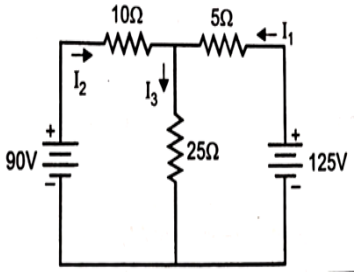
13. List the applications of Synchronous Condenser. CO1-U

14. Summarize the applications of AC servo motor. CO1-U

15. Write the difference between PN junction diode and zener diode. CO1-U

PART – C (5 x 16= 80 Marks)

16. (a) Solve the current supplied by the batteries in the network shown in figure. CO2-App (16)



Or

(b) A 60W, 240V lamp is connected in series with a 40W, 200V lamp across 250V supply. Solve (i) the current taken (ii) voltage across each lamp and (iii) power given by the lamps. Assume that the resistance of the lamps remains constant. CO2-App (16)

17. (a) Explain the principle of operation of a DC Generator and illustrate the characteristics of DC motor. CO1-U (16)

Or

(b) Illustrate and explain the general layout of single phase transformer. CO1-U (16)

18.	(a)	Explain the construction of Synchronous motor.	CO1-U	(16)
		Or		
	(b)	List the Types of single phase induction motor and explain any two.	CO1-U	(16)
19.	(a)	Explain the Construction, Principle of operation and applications of AC servo motor.	CO1-U	(16)
		Or		
	(b)	Explain the different modes of operation and applications of permanent magnet stepper motor.	CO1-U	(16)
20.	(a)	Illustrate in detail the working of BJT in CE configuration with its input & output characteristics.	CO1-U	(16)
		Or		
	(b)	Explain in detail about the Dual slope type and parallel approximation type of ADC.	CO1-U	(16)

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