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ALL

Jharkhand University of Technology, Ranchi

Diploma 2nd Semester Examination, 2024 (NEP)

Subject : Fundamental of Electrical and Electronics Engg.

Subject Code : BSC-201

Time Allowed : 3 Hours

Full Marks : 70

Answer in your own words.

Answer any five questions.

Question 1 is compulsory, and from rest of the questions answer any four only.

All questions carry equal marks.

1. Choose correct answers:

2×7=14

- (i) Which of the following quantities remain same in all parts of a series circuit?
(a) Voltage (b) Current
(c) Power (d) Resistance
- (ii) Which of the following is an essential component of fire safety in buildings?
(a) Fire-resistant paint (b) Smoke detectors
(c) Fireworks display (d) Gasoline storage tanks
- (iii) The energy gap is maximum in _____.
(a) conductors (b) semiconductors
(c) insulators (d) superconductors
- (iv) A transistor is a _____ operated device.
(a) current (b) voltage
(c) both voltage and current (d) None of these
- (v) Which of the following is not a Basic logic gate?
(a) AND (b) NOR
(c) OR (d) NOT
- (vi) Sensor main purpose is to collect data from surrounding and _____ gives output data.
(a) microprocessor (b) actuator
(c) microcontroller (d) None of these
- (vii) Which of the following energy is converted to electricity by battery?
(a) Mechanical energy (b) Chemical energy
(c) Thermal energy (d) Electrical energy



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(2)

2. (a) What is basic electrical safety? What are the five main electrical hazards?
(b) What are the key features of Personal Protective Equipment (PPE) used for electrical work?
7+7
3. (a) What is Ohm's law? Determine relationship among V, I and R.
(b) Four resistors of 3 ohms, 10 ohms, 5 ohms and 12 ohms are connected in series across 120 volts. Determine:
(i) Equivalent resistance of the circuit
(ii) Current flowing through the circuit
(iii) Voltage drop across individual resistance
7+7
4. (a) Describe necessity of Protective devices.
(b) Describe any four Protective devices with their suitable diagram.
7+7
5. (a) What is Transformer? Explain its working principle.
(b) Explain the difference between single phase induction motor and three phase induction motor.
7+7
6. (a) Compare Conductor, Insulator and Semiconductor with examples.
(b) What is Rectifier? Describe Full wave rectifier and Half wave rectifier with suitable diagram.
7+7
7. Write short notes on any four:
3.5×4=14
(a) PN junction diode
(b) Earthing
(c) Wiring System
(d) BJT
(e) Sensor and Actuator