

Reg. No. :

Question Paper Code : 77161

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Second Semester

Civil Engineering

GE 6252 — BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to all Branches except Electronics and Communication Engineering, Medical Electronics engineering, Biomedical Engineering, Computer Science and Engineering, Information Technology, Computer and Communication Engineering, Electrical and Electronics Engineering, Electronics and Instrumentation Engineering, Instrumentation and Control Engineering and Pharmaceutical Technology)

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

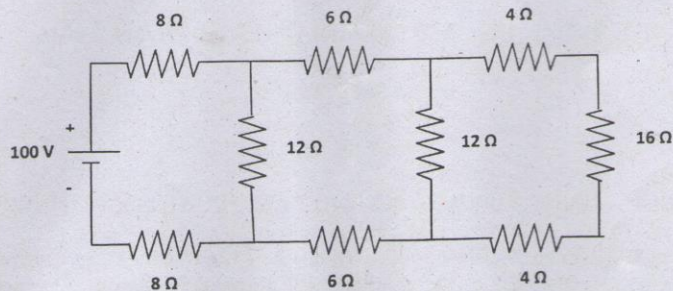
PART A — (10 × 2 = 20 marks)

1. State Kirchhoff's Voltage Law.
2. Mention the errors in Moving iron instruments.
3. Give some applications of DC motor.
4. Why a single phase induction motor does not self start?
5. Find the values of I_C, I_B and β , Transistor values are $\alpha = 0.95$, $I_E = 1 \text{ mA}$.
6. Draw the characteristics of zener diode.
7. Convert $(634)_8$ to binary.
8. Which gates are called as the universal gates? What are its advantages?
9. Draw the block diagram of optical fibre communication?
10. List few applications of microwaves communication.



PART B — (5 × 16 = 80 marks)

11. (a) Calculate (i) equivalent resistance across the terminal of the supply (ii) total current supplied by the source (iii) power delivered to 16Ω resistor the circuit shown below.



Or

- (b) Draw and explain the working principle of attraction type, repulsion type M.I instruments and derive its deflecting torque.
12. (a) Explain the construction and principle of operation of a DC generator with neat sketch.

Or

- (b) (i) Derive the torque and speed equations of DC motor. (8)
 (ii) Explain the construction details of single phase transformer. (8)
13. (a) Describe the working of a PN junction diode with neat diagrams. Also explain its V-I characteristics.

Or

- (b) Explain the working of the CB configuration of a BJT and draw its input, output characteristics.
14. (a) Draw and explain the operation following flip-flops, (i) RS flip-flops using NOR gate (ii) D flip-flops using NAND gate (iii) JK flip-flops using NAND gate.

Or

- (b) With necessary diagrams describe the operation of a 4-bit binary, ripple counter.
15. (a) Describe the functional block diagram of Monochrome TV transmitter and receiver with neat sketch.

Or

- (b) Describe the principle of Amplitude & Frequency modulation and its needs.