EnggTree.com

Reg. No. : E N G G T R E E . C O M

Question Paper Code : 85023

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2025.

First Semester

Electronics and Communication Engineering

EE25C04 – BASIC ELECTRONICS AND ELECTRICAL ENGINEERING

(Common to : Biomedical Engineering / Electronics Engineering (VLSI Design and Technology)/Electronics and Computer Engineering/Medical Electronics

(Regulations 2025)

Time : Three hours

Maximum : 100 marks

For More Visit our Website
EnggTree.com

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. The voltage across a 5 μF capacitor changes uniformly from 10V to 70V in 5ms. Calculator the change in capacitor charge and charging current.
2. List the applications of PN diode and Zener diode.
3. Single phase induction motor is not a self-starting motor. Justify.
4. Write the Torque equation of DC motor.
5. Write about creep adjustment in three phase energy meter.
6. How a PMMC meter can be used as voltmeter and ammeter?
7. Mention the largest AC transmission voltage in India.
8. List the advantages of DSO.
9. Mention the two factors influencing the choice of transducers.
10. Write the principle of Strain gauge.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain with neat graph the V-I characteristics of PN diode. (8)

(ii) Discuss about the passive components in basic electronics. (5)

Or

(b) (i) Explain with neat diagram the V-I characteristics of Zener diode. (8)

(ii) Explain about intrinsic and extrinsic semiconductor with examples. (5)

Downloaded from EnggTree.com

EnggTree.com

12. (a) (i) Discuss in detail with a neat sketch, the construction and working principle of DC generator. (8)

(ii) Derive the EMF equation of DC generator. (5)

Or

(b) (i) Explain in detail with neat diagrams, the construction and working principle of three phase induction motor. (8)

(ii) Derive the EMF equation of transformer. (5)

13. (a) Explain in detail with a neat diagram, the working of a Permanent Magnet Moving Coil instruments. Also explain about the static and dynamic characteristics of a measuring system. (8 + 5)

Or

(b) Explain in detail with a neat sketch, the construction and working of single phase induction type energy meter. What are the advantages and disadvantages of the same? (8+5)

14. (a) (i) Explain in detail with neat single line diagram, the structure of electric power system. (8)

(ii) Discuss briefly the working principle of Smart Sensor and thermal images. (5)

Or

www.EnggTree.com

(b) (i) Explain with neat diagram the working of optical and digital transducer. (8)

(ii) Discuss the various methods of Earthing of electric power system. (5)

EnggTree.com

15. (a) Explain with a neat sketch the construction and working of LVDT. Mention few applications of the same.

Or

(b) Explain in detail about the various types of sensors and mention its applications.

PART C — (1 × 15 = 15 marks)

16. (a) Discuss the working principle of BLDC motor and analyze why BLDC motor is preferred for low segment Electric Vehicle application?

Or

(b) Why is it necessary to protect the lines and other equipment of the power system against over voltages? Discuss briefly about the various protective devices used in power system protection.

Downloaded from EnggTree.com