

December 2023

**B.Tech. (CSE/CIVIL) Re-Appear 1st Sem.,
Elements of Electronics Engineering (EC-101C)**

Max. Marks:75

Time: 3 Hours

- Instructions:**
1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
 2. Answer any four questions from Part -B in detail.
 3. Different sub-parts of a question are to be attempted adjacent to each other.

PART -A

- Q1 (a) Explain how a normal diode is different from Zener diode? What are Zener diodes mainly used for? (1.5)
- (b) What is a clipper? Make a circuit for positive clipper. (1.5)
- (c) Write any two applications of BJT? (1.5)
- (d) Write the truth table and draw symbol for AND and XOR gate? (1.5)
- (e) What is De-Morgan's theorem? Explain using expression. (1.5)
- (f) How a sequential circuit is different from a combinational circuit? Give an example for both type of circuit. (1.5)
- (g) Why the measurement of electrical signal is required? (1.5)
- (h) What are the applications of LCD display? (1.5)
- (i) What is the solar cell? What are its applications? (1.5)
- (j) Why modulation is required for signal communication? (1.5)

PART -B

- Q2 (a) What is full wave rectifier and half wave rectifier? Explain the working and construction of bridge type full wave rectifier with neat sketches. (5)
- (b) Explain the construction and operations and working of BJT as an amplifier. (5)
- (c) Explain the difference between Field Effect Transistor (FET) and Bipolar Junction Transistor (BJT) (5)

Q3 (a) Convert (7.5)

- (i) $(110.011)_2 = (\dots\dots\dots)_{16}$
- (ii) $(011.11)_8 = (\dots\dots)_{10}$
- (iii) $(123.45)_{10} = (\dots\dots)_2$

- (b) What is a flip flop? What are the applications of Flip flop? Write truth table and explain the working of JK flip-flop. How this JK FF is different from SR FF? (7.5)

Q4 (a) Explain the difference between analog and digital multi-meter. Using the neat diagram explain the construction and working of digital multi-meter? (7.5)

(b) What is function generator? Describe the working of function generator with neat sketches. (7.5)

Q5 (a) What are the photo voltaic cells and photo conductive cells? How these both are different from solar cell? Write the working and few applications of both photo voltaic cell and photo conductive cell. (7.5)

(b) Explain working and construction of LED display. What are the advantages, disadvantages and applications of LED display. (7.5)

Q6 (a) Explain the block diagram of basic communication system. What is the need of modulation and how it is carried out? (7.5)

(b) Explain the difference between Frequency Modulation, Amplitude Modulation and Phase Modulation. Draw and explain the block diagram of how FM transmitter and receiver? (7.5)

Q7 Write short note on

I. Filter circuits for rectifiers (5)

II. Working of CRO (5)

III. Seven segment display and its types (5)
