CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐ **21ELN14/24**

First/Second Semester B.E. Degree Examination, July/August 2022
Basic Electronics and Communication Engineering

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. With a neat block diagram, explain the working of DC power supply. Also mention the principle components used in each block. **(07 Marks)**

   b. Sketch the circuit of each of the following based on the use of operational amplifiers:
   (i) Differentiator   (ii) Integrator   (iii) Inverting amplifier **(06 Marks)**

   c. Explain the working of Bi phase Full wave rectifier circuit with neat diagram and waveforms. **(07 Marks)**

OR

2 a. Mention the advantages of negative feed-back in amplifiers circuits. With relevant equations and diagram, explain the concept of negative feedback. **(07 Marks)**

   b. With suitable circuit diagram, explain single stage astable multivibrator using operational amplifier. **(07 Marks)**

   c. Explain the conditions for sustained oscillations. Determine the frequency of oscillation of a three stage ladder network in which C = 10 nF and R = 10 KΩ. **(06 Marks)**

Module-2

3 a. With a neat block diagram, explain the arrangement of a microcontroller system. **(06 Marks)**

   b. Design a 3:8 decoder and show its implementation using basic gates. **(08 Marks)**

   c. With the help of truth table, explain a full adder using logic gates. **(06 Marks)**

OR

4 a. Write a note on different data types mentioning the bit size and range of values supported. **(06 Marks)**

   b. Define a bistable. Using truth table and logic circuit, explain RS bistable. **(07 Marks)**

   c. What is multiplexer? With truth table and logic circuit, explain 8:1 multiplexer. **(07 Marks)**

Module-3

5 a. Compare embedded system and general computing system. Also provide the application areas of embedded systems. **(08 Marks)**

   b. Explain the different configurations of 7-segment LED display. **(06 Marks)**

   c. Write a note on classification of embedded systems. **(06 Marks)**

OR

6 a. Define actuator. With relevant diagram, explain the operation of Relay, Push button, Piezo buzzer. **(08 Marks)**

   b. Bring out the differences between RISC and CISC and Harvard and Vonneumann architecture. **(06 Marks)**

   c. Bring out the main features of UART and USB. **(06 Marks)**

Module-4

7 a. Describe the basic block diagram of a communication system. **(06 Marks)**

b. Explain the following with the help of waveforms: (i) PAM (ii) PWM (iii) PPM **(08 Marks)**

c. Define an antenna and discuss different types of antennas. **(06 Marks)**

OR

8 a. Explain different types of radio wave propagation with a neat diagram. **(06 Marks)**

b. Discuss various Multiple Access Techniques used in cellular network. **(06 Marks)**

c. Define sampling theorem, Nyquist rate and explain when aliasing can happen. Also mention the ways in which aliasing can be avoided. **(08 Marks)**

Module-5

9 a. Draw the schematic diagram of a cellular telephone system and define its basic components. **(06 Marks)**

b. Bring out the features of FM transmitter and FM receiver in microwave communication system. **(08 Marks)**

c. Explain the optical fibre communication system with a block diagram. **(06 Marks)**

OR

10 a. Write a short note on : (i) WLAN (ii) Blue tooth **(06 Marks)**

b. Draw the architecture of GSM system and explain the important features of it. **(08 Marks)**

c. Draw the block diagram showing the basic elements of a satellite communication system and briefly explain them. **(06 Marks)**

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