CBCS SCHEME

21ELN14/24

USN ☐☐☐☐☐☐☐☐☐☐

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)

* * * * *