CBCS SCHEME

USN | | | | | | | | | | |

21ELN14/24

First/Second Semester B.E. Degree Examination, Dec.2023/Jan.2024
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. Explain AC to DC power supply with the neat block diagram. **(10 Marks)**

b. Write a note on different types of amplifiers. Also define the voltage gain and current gain. **(10 Marks)**

OR

2 a. Mention the different characteristics of an operational amplifier. **(07 Marks)**

b. Explain wein bridge oscillator. **(07 Marks)**

c. Explain operational amplifier configurations. **(06 Marks)**

Module-2

3 a. Explain the different basic logic gates. **(06 Marks)**

b. With the help of timing diagram, explain how RS bistable element works. **(07 Marks)**

c. Design full adder circuit using basic gates. **(07 Marks)**

OR

4 a. With a neat block diagram, explain the working of 4-bit binary counter. **(10 Marks)**

b. Define multiplexer and explain 4:1 multiplexer with circuit diagram. **(10 Marks)**

Module-3

5 a. Bring out the classification in Embedded Systems
i) Based on generations
ii) Based on complexity and performance requirements. **(10 Marks)**

b. Bring out the differences between Harvard and Von-Neumann architecture. **(05 Marks)**

c. Explain WiFi communication interface. **(05 Marks)**

OR

6 a. With the help of neat block diagram, explain an instrumentation system. **(07 Marks)**

b. What are sensors? Write a note on the following sensors (i) Temperature sensor (ii) Sand sensor. **(06 Marks)**

c. Explain 7-segment LED display with common anode configuration. **(07 Marks)**

Module-4

7 a. Define sampling theorem and explain when aliasing takes place and how can it be avoided. **(07 Marks)**

b. Define an antenna and discuss different types of an antenna. **(07 Marks)**

c. Define and explain SNR, Noise figure, channel types and amplitude modulation. **(06 Marks)**

OR

8 a. Discuss the various multiple access techniques used in a cellular network. **(10 Marks)**

b. Explain Forward Error Correction and Automatic Repeat Request. **(10 Marks)**

Module-5

9 a. Bring out the features of FM transmitter and FM receiver and repeaters in microwave communication. **(10 Marks)**

b. With the help of a block diagram, explain the generalized configuration of a fiber-optic communication system. **(10 Marks)**

OR

10 a. Define the following terms in GSM system :

i) Base Station Subsystem (BSS)

ii) Mobile Station (MS)

iii) Network Switching System (NSS) **(06 Marks)**

b. Based on orbits, discuss the different types of satellites. **(07 Marks)**

c. Write a note on LTE-A system architecture **(07 Marks)**

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