S-499

Total Pages : 3   Roll No. ....

MSCPH-521

Digital Electronics and Communication System

M.Sc. Physics (MSCPH)

3rd Semester Examination, 2022 (Dec.)

Time : 2 Hours]   **Max. Marks : 70**

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION–A
(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. (a) What is hexadecimal number system? How will you convert it to binary number system?

(b) Convert the octal number 215.17 in hexadecimal.

(c) Convert the binary number 1001011110.01011 in octal and hexadecimal.

2. Describe J-K flip-flop and Master slave flip-flop. Discuss its merit over clocked flip-flop.

3. What is register? Explain different kinds of registers and their function along with block diagram of shift register.

4. What is modulation? Explain single side band modulation. What are difference between AM and FM.

5. What are the elements of satellite communication? Explain each of them with a suitable block diagram.

SECTION–B
(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.   (4×8=32)

1. Explain the various logic gates with their truth table.

2. Describe Gray codes. What is the advantage of Gray codes?

3. Describe Multiplexer and De-multiplexer.

4. What do you understand by counters? Discuss the Asynchronous counter.

5. What are analog signals why do we convert analog to digital signals?

6. For an FM signal, f_{max} is given by 1.5 MHz. The total frequency swing is given by 900 kHz. Find f_c, Δf and $f_{m\,in}$.

7. What are basic properties of antenna? Discuss the high frequency antenna.

8. Discuss the types of orbits used for satellite communication.

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