

B.SC. (I. T.) SEM. - I (CBCS - 2015 COURSE) : SUMMER - 2018

SUBJECT : DIGITAL ELECTRONICS & COMMUNICATIONS

Day : **Monday**
Date : **28/05/2018**

S-2018-0944

Time : **02.30 p.m. to 05.30 p.m.**
Max. Marks : 60

N.B.:

- 1) **Q.No.1** is **COMPULSORY**. Out of the remaining questions attempt any **FOUR**.
 - 2) Figures to the right indicate **FULL** marks.
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- Q.1** Attempt the following: [20]
- a) Describe the pros and cons of FM versus PM.
 - b) Compare any four characteristics between Twisted Pair, Co-axial and OFC transmission media.
 - c) Differentiate between the following:
i) ROM ii) EEPROM.
 - d) Differentiate between the following multiplexing techniques:
i) FDM ii) TDM.
 - e) Briefly describe the various types of sequential circuit.
- Q.2** Design a combinational circuit with three inputs X, Y, Z and three outputs A, B, C. When the binary input is 0, 1, 2 or 3, the binary output is one greater than the input. When the binary input is 4, 5, 6 or 7, the binary output is one less than the input. Explain the circuit logic. [10]
- Q.3** Design a 3 – bit down counter. This is a sequential circuit where the state sequence cycles through 111, 110, 101, 100, 011, ... Use JK Flip Flops in your design. Explain the operation of the circuit at each clock pulse. [10]
- Q.4** Explain the difference between SRAM and DRAM. Highlight the characteristics of each and their application areas. [10]
- Q.5** Draw the neat and labeled diagram of a 4 – bit shift register that can shift right, left and with parallel load capability. Explain the diagram, in detail. [10]
- Q.6** A device accepts a 3 – bit binary input. There are 8 output lines that are used to light the approximate LEDs of a 7 – segment display to display the digits corresponding to the decimal equivalent of the input. Design the device, starting from the truth table. [10]
- Q.7** Briefly explain the BPSK modulation scheme. State the advantages and disadvantages of using QPSK over BPSK. [10]

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