AP-101

May-2016

B.Sc., Sem.-IV

CC-205 : Electronics

Time : 3 Hours]   **[Max. Marks : 70**

Instructions : (1) **All** questions carry equal marks.

                 (2) Symbols used here have their usual meanings.

                 (3) Figures to the right indicate marks.

1. (a) Explain Heaviside's partial function expansion theorem.   **(7)**

<div align="center">OR</div>

What is Inverse Laplace Transformation ? Explain it in detail.

   (b) Explain Response of Series R-L Circuit to Exponential Driving Voltage.   **(7)**

<div align="center">OR</div>

Explain Response of Series R-C Circuit to Exponential Driving Voltage.

2. (a) Explain Spectrum Envelope for a Recurring Pulse.   **(7)**

<div align="center">OR</div>

Explain evaluation of Fourier Coefficients.

   (b) Discuss Exponential Function e^{-at} and Impulse Function with respect to Fourier Transform.   **(7)**

<div align="center">OR</div>

Give the relationship of Laplace and Fourier Transforms.

3. (a) What are the applications of Shift Registers ? Explain it in detail.   **(7)**

<div align="center">OR</div>

Explain Clocked D flip-flop with Logic diagram, symbol & Truth Table.

   (b) Explain Edge-Triggered RS flip-flop with Logic diagram, symbol & Truth Table. **(7)**

<div align="center">OR</div>

List the types of Registers. Explain Parallel In-Serial Out shift registers.

4. (a) Discuss Memory Classification in detail. **(7)**

OR

Explain Example of a Microcomputer System with block diagram.

(b) Compare Peripheral-Mapped I/O with Memory-Mapped I/O. **(7)**

OR

Explain primary operations performed by microprocessor. Define data bus & control bus.

5. Answer the following : **(14)**

   (1) Define Laplace transform.

   (2) Write the Laplace of e^{at}.

   (3) Give the Laplace transform of $e^{-at} \sin \omega t$.

   (4) Write equation for unit step function.

   (5) Fourier transform is nothing but the Fourier ____.

   (6) The function having half-wave symmetry is given by $f(t) =$ _____.

   (7) For any even function $f(t)$, the even part f_o is equal to _____.

   (8) What do the letters R and S stand for in the term "RS latch" ?

   (9) Bistable multivibrator is another term for an _____ flip-flop.

   (10) What does an entry X mean in a flip-flop truth table ?

   (11) An electronic circuit that has two stable states is called _____.

   (12) In 8085 MPU, address bus is group of _____ lines.

   (13) The eight data lines enable the MPU to manipulate 8-bit data ranging from 00 to___.

   (14) The buffer is a logic circuit that amplifies the current or _____.

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