LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.C.A. DEGREE EXAMINATION – COMPUTER APPLICATIONS

SECOND SEMESTER – **APRIL 2015**

CA 2505 - DIGITAL LOGIC FUNDAMENTALS

Date : 17/04/2015   Dept. No.   Max. : 100 Marks
Time : 01:00-04:00

PART – A

Answer ALL the questions: **(10 x 2 = 20 marks)**

1. Convert decimal 41 into a binary number.
2. Define Truth Table.
3. Write about Half subtractor.
4. What is EPROM?
5. Define register.
6. What is counter?
7. Write down the purpose of Instruction code?
8. What is indirect address?
9. What is Interrupt cycle?
10. Write down the use of STA instruction.

PART – B

Answer ALL the questions: **(5 x 8 = 40 marks)**

11. a.   Convert the following decimal numbers to the base indicated

      (i)   225.225 to Binary
      (ii)   0.513 to Octal.

   (OR)

   b.   Simplify the following (i) $xyz + x'y + xyz'$
        (ii) $y(wz'+wz) + xy$.

12. a.   Design and explain about the Full Subtractor.

   (OR)

   b.   Write down the Types of ROM.

13. a.   Describe about the JK Flip flop.

   (OR)

   b.   Write about Shift registers.

14. a.   Explain about the Common Bus system of a processor.

   (OR)

   b.   Discuss about the stored program architecture of computer system.

15. a.   Explain about the computer Instructions.

   (OR)

   b.   Write about the memory reference instructions.

PART – C

Answer any TWO of the following: (2 x 20 = 40 marks)

16. a. Simplify the following using K-Map and draw the logic circuit
$\sum(2,3,12,13,14,15)$

 b.   Explain and draw the logic diagram and function table of 4 to 1 line multiplexer.

17. a. Explain in detail about the RS flip flop.

 b. Write about 4 bit synchronous binary counters.

18. a.   Explain instruction formats with examples.

 b.   Explain about various Addressing Modes with example.

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