

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



**B.C.A.DEGREE EXAMINATION –COMPUTER APPLICATIONS**

**SECOND SEMESTER – APRIL 2018**

**CA 2505– DIGITAL LOGIC FUNDAMENTALS**

Date: 24-04-2018  
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

**PART - A**

**Answer ALL the Questions**

**(10 x2 =20 Marks)**

1. Convert decimal 52 into a binary number.
2. Define Logic Gates.
3. Define Full adder.
4. What are Encoders?
5. Define Flip flop.
6. What are counters?
7. Write the use the Instruction code.
8. What is Indirect Address?
9. Define Instruction cycle.
10. Write down the use of LDA instruction.

**PART - B**

**Answer ALL the Questions**

**(5 X 8 = 40 Marks)**

11. a) Simplify the following  $XYZ+X'Y+XYZ'$   
**(OR)**  
b) Convert the following decimal numbers to base indicated
  - (i) 463.458 to Octal
  - (ii) 225.225 to Binary
12. a) Design and Explain about Half Subtractor.  
**(OR)**  
b) What are the types of ROMS? Explain each.
13. a) Discuss about the RS Flip flop.  
**(OR)**  
b) Explain in detail about the Ripple Counters.

14. a) Explain the common bus system of a processor.

**(OR)**

b) Discuss about the Stored Program Organization.

15. a) Write about the Timing and control in detail.

**(OR)**

b) Explain the Register-Reference instructions in detail.

**PART - C**

**Answer any TWO Questions**

**(2 X 20 = 40 Marks)**

16. a) Simplify the following using K-map and draw the logic circuit.

$$F(P,Q,R,S) = \sum(0,2,5,7,8,10,13,15)$$

**(10 Marks)**

b) Explain 16-1 multiplexer with circuit diagram.

**(10 Marks)**

17. a) Explain in detail about JK Flip flop.

**(10 Marks)**

b) Explain about the various address modes in detail.

**(10 Marks)**

18. a) Explain about the Instruction formats with suitable example

**(10 Marks)**

b). Describe about the shift registers.

**(10 Marks)**

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