

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc.DEGREE EXAMINATION –COMPUTER SCIENCE

SECOND SEMESTER – APRIL 2018

CS 2505– COMPUTER ORGANIZATION & ARCHITECTURE

Date: 27-04-2018
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

Part A

Answer ALL the Questions

(10 * 2 = 20)

1. Prove by Perfect Induction: $x+yz = (x+y)(x+z)$
2. Differentiate Sequential and Combinational Logic
3. Give the difference between Decoder and Demultiplexer.
4. Define Sequence Register.
5. Give the format of a basic computer instruction
6. Define Effective Address
7. Give the different phases in an instruction cycle.
8. Define Interrupt Cycle.
9. What is a Control Word?
10. Give any four conditional branch instructions.

Part B

Answer ALL the Questions

(5 * 8 = 40)

11. Explain the working principle of JK and T flip-flop.

(or)

What are Universal Gates? Explain how AND, OR, NOT are achieved using universal gates.

12. Explain the Working Principle of Multiplexer.

(or)

Design a Binary Counter.

13. Draw and Explain Stored Program Organization.

(or)

With a neat Diagram explain the Control unit of a basic computer.

14. State the Register Reference and IO instructions with its purpose.

(or)

Draw the flowchart for Instruction Cycle.

15. Discuss about the types of Instruction formats.

(or)

Give the Data Transfer and Shift Instructions with its usage

Part C

Answer Any TWO Questions

(2 * 20 = 40)

16. (a) Simplify the following using map method

(i) $F(w,x,y,z) = \sum(1,4,6,7,8,9,10,11,15)$ (ii) $F(a,b,c,d) = \sum(2,3,6,7,8,9,13,15)$

(b) Discuss about the Design of an Encoder.

17. (a) Write short notes on the List of Registers needed for a basic computer.

(b) Give the hardware components needed for a basic computer design along with the flowchart for Computer Operation.

18. (a) Explain the different types of addressing modes with examples.

(b) With a neat diagram explain how status register bits are set.
