

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – COMPUTER SCIENCE

FIRST SEMESTER – NOVEMBER 2019

UCS 1502 – COMPUTER ORGANIZATION AND ARCHITECTURE

Date: 30-10-2019

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

Part - A

Answer ALL questions

10 x 2 = 20

1. What are Universal gates?
2. Define Race condition.
3. What is Encoder?
4. Write the purpose of a shift register.
5. Define Addressing mode.
6. List and write the purpose of any three CPU registers.
7. What is Instruction Cycle?
8. Give an example for Register Reference Instructions.
9. Define Indexed addressing mode.
10. What do you understand by status bit?

Part - B

Answer ALL questions

5 x 8 = 40

11. a) Explain Sum of Products and Product of Sums with an example.
(OR)
b) Explain the operation of basic logic gates with block diagram and truth table.
12. a) Discuss the operation of 3 X 8 decoder with diagram.
(OR)
b) Explain the operation of Multiplexer with circuit diagram.
13. a) Explain the basic concept of stored program organization.
(OR)
b) Bring out the instruction formats and explain with an example.
14. a) Discuss about Interrupt Cycle.
(OR)
b) Write short notes on I/O Instructions
15. a) List and explain various instructions in Logical group.
(OR)
b) Explain the following Addressing modes with example:
 - i) Direct Addressing
 - ii) Register Addressing
 - iii) Immediate Addressing
 - iv) Register Indirect Addressing

Part - C

Answer any TWO questions

2 x 20 = 40

16. a) Explain SR and JK Flip Flop with diagram and operation truth table.
b) Simplify the function $F = \sum m \{0, 1, 2, 3, 5, 8, 9, 10, 12, 13, 15\}$ using 4 variable K-Map and implement the circuit using logic gates.
17. a) Draw a circuit diagram for Encoder and explain its operation.
b) Describe the concept of Common bus system and its interconnection with neat diagram.
18. a) Describe the significant of Memory Reference Instructions.
b) Explain stack and general register organization in detail.

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