
First Semester

DMC 1601 – COMPUTER ORGANIZATION

(Regulations 2007)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Find 1’s and 2’s complement of 11010111.
2. Write the characteristics table of JK flip flop.
3. List any two features of binary counter.
4. What is the role of program counter?
5. What do you mean by subroutine?
6. Define the term “Interrupt”.
7. What is DMA?
8. What do you mean by memory mapped I/O?
9. What is memory hierarchy?
10. Give the general format of control word.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the circuit diagram of
    (i) Binary codes.
    (ii) Full adder. (8 + 8)

    Or

(b) Explain the procedure for Sum-Of-Product map simplification for the function.
    \[ F(A, B, C, D) = \Sigma(0, 1, 2, 6, 8, 9, 10) \]

Question Paper Code: BS2202
12. (a) (i) Briefly explain the function of 4-to-1 of multiplexer. (8)
(ii) Write note on Register Transfer Language. (8)

Or
(b) Discuss in detail about arithmetic and logic micro operations with suitable example. (16)

13. (a) Brief about the Instruction cycle with a neat sketch. (16)

Or
(b) Explain the concept of subroutine with an example. (16)

14. (a) Discuss in detail about asynchronous data transfer and its implementation issues. (16)

Or
(b) Explain the following concept: (8 + 8)
   (i) Priority Interrupt
   (ii) IOP.

15. (a) Explain the various cache memory mapping techniques. (16)

Or
(b) Explain various addressing modes with suitable examples. (16)
M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2016.

First Semester

DMC 1601 — COMPUTER ORGANIZATION

(Regulations 2007)

Time : Three hours  Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Convert \((582386)_{10}\) to a binary number.
2. Define Half-adder.
3. Write a note on Decoder.
4. What is a Multiplexer?
5. Define Machine language.
6. What is an Assembler?
7. What is meant by Register?
8. Define DMA.
9. List any two addressing modes.
10. What is meant by memory?

PART B — (5 × 16 = 80 marks)

11. (a) What is meant by Full-adder? Illustrate its working principles.  

Or

(b) Design a combinational circuit with four inputs and four outputs. The output generates the 2's complement of the input binary number.
12. (a) Explain with neat timing diagrams:
   (i) Multicycle synchronous bus transfer for read operation. (8)
   (ii) Asynchronous bus transfer for a write operation. (8)

   Or

   (b) Discuss the Binary Counter, and illustrate its functions. (16)

13. (a) What is meant by memory reference instruction? Discuss with examples. (16)

   Or

   (b) (i) Illustrate the various types of Registers. (8)
       (ii) Write an assembly language program to add N numbers using direct addressing. (8)

14. (a) (i) List the functions of an I/O interface. (6)
       (ii) Discuss the various modes of Data transfers. (10)

   Or

   (b) Describe the functions of DMA. (16)

15. (a) Describe the organization of the Stack and its working principle. (16)

   Or

   (b) Write a note on the following:
       (i) Cache memory. (4)
       (ii) Main memory. (4)
       (iii) Associative memory. (4)
       (iv) Control Word. (4)
Question Paper Code: 80202

M.C.A. DEGREE EXAMINATION, AUGUST 2015

First Semester

DMC 1601 – COMPUTER ORGANIZATION

(Regulation 2007)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw a diagram for exclusive OR gate and write its truth table.

2. Write a note on D-flip flop.

3. Define Multiplexer.

4. What is binary counter?

5. Differentiate register from buffer.

6. State any two instruction code format.

7. Define interrupt.

8. Write any two types of data transfer mode.

9. What is an auxiliary memory?

10. What is a control word?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Sketch the Half-Adder circuit and derive its truth table. (8)

(ii) Explain Don't care condition with suitable examples. (8)

Or
(b) Simplify the following Boolean function using K-Map.
\[ F(A,B,C,D) = \Sigma (0,1,2,5,8,9) \]
(i) Sum of product form
(ii) Product of sum form

12. (a) (i) Explain the different types of Micro operations with examples.
(ii) Construct 8 to 1 multiplexer and explain its function.

Or

(b) (i) Draw a block diagram of 4 bit binary counter, and explain its operations.
(ii) Draw a block diagram of 4 bit bi-directional shift register. Discuss.

13. (a) Describe with suitable diagram, the components required for the design of a Basic Computer.

Or

(b) (i) Illustrate the need of subroutine.
(ii) Write an assembly language program to find smallest number from an array.

14. (a) What is an interrupt? Explain the different types of interrupts.

Or

(b) (i) Explain the functions of DMA with flowcharts.
(ii) Explain the operations of serial communication process.

15. (a) Explain the different types of addressing modes with example.

Or

(b) (i) Discuss in detail about main memory and virtual memory.
(ii) Explain the memory hierarchy.
Question Paper Code: 22204

M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2015.

First Semester

DMC 1601 — COMPUTER ORGANIZATION

(Regulations 2007)

Time: Three hours
Maximum: 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Convert (1110111.0011)₂ to hexadécimal.
2. Define Full-adder.
3. What is Register Transfer Language (RTL)?
4. What is a Multiplexer?
5. Give an example of 4-address instruction.
6. What is an Assembler?
7. What is meant by instruction code?
9. What is control word?
10. Define virtual memory.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the operations of different flip flops.

   (ii) Compare combinational and sequential circuits.

   Or

   (b) Simplify the following Boolean functions by means of tabulation method:

   \[ P(A, B, C, D, E, F) = \Sigma(6, 9, 13, 19, 18, 25, 27, 29, 41, 45, 57, 61) \]
12. (a) Write note on arithmetic logic shift unit. (16)  
    Or
(b) (i) Discuss the Decoder and its functions with a neat diagram. (8)  
       (ii) Explain the operation of binary counter. (8)
13. (a) Compare and contrast the Machine Language and Assembly Language. (16)
    Or
(b) (i) Explain the need of a subroutine. (8)
       (ii) Write an assembly language program to add a list of numbers using direct addressing. (8)
14. (a) (i) List the functions of an I/O interface. (6)  
       (ii) Discuss about DMA. (10)  
    Or
(b) (i) Explain the asynchronous data transfer with an example. (8)
       (ii) What is IOP? Explain. (8)
15. (a) (i) Describe the various instruction formats. (8)  
       (ii) Explain the various addressing modes. (8)  
    Or
(b) Write a note on the following:
       (i) Cache memory (8)  
       (ii) Associative memory. (8)