

GANPAT UNIVERSITY
B. Tech Semester – III Information Technology
Regular Examination Nov / Dec - 2011
2IT302: COMPUTER SYSTEM ORGANIZATION

Time: 3 Hours]

[Total Marks: 70

Instructions:

1. Attempt all questions.
2. Figures to the right indicate full marks.
3. Each section should be written in a separate answer book.

SECTION-I

1. (A) Answer the following. [5]
- (1) Which function is carried out by Address Bus?
 - (2) How many address lines are necessary to address 1024 bytes memory chip?
 - (3) Define term : Mnemonics
 - (4) Write any two 2 – byte instructions.
 - (5) What is use of HLT instruction?
- (B) Explain flag register in brief. [4]
- (C) What is microprocessor? Discuss Microprocessor as MPU. [3]

OR

1. (A) Answer the following. [5]
- (1) What is the use of ALE signal in 8085 microprocessor?
 - (2) Which function is carried out by Control bus?
 - (3) What is the difference between ASCII and Extended ASCII
 - (4) Define term: Instruction.
 - (5) When ZERO flag is set in 8085 microprocessor.
- (B) Explain microprocessor Programmable model in brief. [4]
- (C) Write an ALP to store 11H in register A and 22H in register B. Perform addition on content of register A and B. Store result at memory location D100H. [3]
2. (A) Discuss microprocessor externally initiated operations of 8085 [5]
- (B) Explain Following Instruction [6]
- (i) LDAX (ii) XRI (iii) CMP

OR

2. (A) Explain bus organization of 8085 microprocessor. [5]
- (B) Explain Following Instruction. [6]
- (i) JZ (ii) CMA (iii) MVI
3. Answer the following. (Any Three) [12]
- (1) Write a short note on “Second Generation of Computer System“.
 - (2) Discuss Arithmetic micro –operation in brief.
 - (3) Explain Layer View of computer Architecture in detail.
 - (4) Write a short note on addressing mode in brief.

SECTION-II

4. (A) Answer the following. [5]
- (1) Convert $(101101)_2$ to gray code.
 - (2) Define term : Duality
 - (3) $(1F2D.2)_{16} = (\quad)_{10}$
 - (4) Perform $1210 - 0937$ using 9's complement
 - (5) Convert $(156.25)_{10}$ to binary number.

(B) Explain Universal gate in brief. [4]

(C) Prove $(A+B)' = A' \cdot B'$ and $(A \cdot B)' = A' + B'$ [3]

OR

4. (A) Answer the following. [5]
- (1) Find decimal value of $(100111.01)_2$
 - (2) $(7852)_8 = (\quad)_{10}$
 - (3) Define term : Minterm
 - (4) Perform $100111 - 100001$ using 2's complement method
 - (5) find 10's complement of $(9101.25)_{10}$

(B) Minimize the following Boolean function [4]
 $F(W, X, Y, Z) = \Sigma(0, 2, 3, 7, 8, 9, 11, 14)$ using Karnaugh map method.

(C) Explain basic logic gate in brief. [3]

5. (A) Explain combinational circuit which performs addition on three bits. [3]

(B) Write the difference between combinational and sequential circuit. [4]

(C) Write a short note on "BCD Adder". [4]

OR

5. (A) Explain 3 X 8 decoder and also construct 4 X 16 decoder using 3 X 8 decoder. [4]

(B) Explain 5- variable karnaugh map with an example. [4]

(C) Write a Short note on "Octal to Binary encoder." [3]

6. Answer the following (Any Three). [12]

(1) Discuss serial transfer in register with an example.

(2) Explain Master- Slave JK Flip- Flop in brief.

(3) Explain T- Flip – Flop in brief.

(4) Draw and Explain bi-directional shift register with parallel load.

----- END OF PAPER -----