

Exam No: _____

GANPAT UNIVERSITY
B. TECH SEM- IV (ELECTRICAL)
REGULAR EXAMINATION- APRIL-JUNE 2017
2EE403: Digital Electronics & Microprocessors

Time: 3 Hrs

TOTAL MARKS: 60

- Instructions: (1) This Question paper has two sections. Attempt each section in separate answer book.
(2) Figures on right indicate marks.
(3) Be precise and to the point in answering the descriptive questions.

SECTION I

Q.1

- (A) With neat diagrams explain the working of parallel in, serial out (PISO) type of shift register [05]
(B) Describe the operation of Two bit Ripple up as well as down counter using positive edge triggered Flip flops with necessary diagrams and waveforms. [05]

OR

Q.1

- (A) Define the following terms with the relation to flip flops (i) Propagation delay time (ii) Excitation tables (iii) Characteristic equation (iv) Set-up time (v) hold time (vi) latch [05]
(B) Briefly explain the working of Transparent flip flop using necessary diagram and truth table. [05]

Q.2

- (A) Subtract the following in BCD and XS-3 code [05]
(i) $86 - 24$ (ii) $635.7 - 419.8$
(B) (i) What do you mean by numeric and alphanumeric codes? State the examples of each. (ii) Define the terms XS-3 and 8421 Code. [05]

OR

Q.2

- (A) Perform the following operations: [07]
(i) $(256)_8 = (?)_{16}$
(ii) $(463)_8 = (?)_{10}$
(iii) $1101 \times 101 = (?)$
(iv) $11011 + 1101 = (?)$
(v) $(1011)_2 = (?)_{10}$
(B) Subtract the 274-86 decimal numbers by 9's and 10's complement methods [03]

Q.3

- Attempt following questions.** [10]
(A) Write a short note on Master-slave S-R flip flop.
(B) (i) Distinguish between combinational and sequential circuits
(ii) State the differences between shift registers and counters

SECTION II

- Q.4 (A) Draw and explain functional block diagram of 8085 microprocessor. [05]
 (B) Write an assembly language programming to add two 8 bit hexadecimal numbers which is stored at memory location 2010h and 2011h. Store the result in memory location 2012 and status of carry flag in memory location 2013h. (Result of addition generates carry) [05]

OR

- Q.4 (A) Explain, How to write, assemble and execute simple program? [05]
 (B) Write an assembly language programming to transfer bunch of data from memory location 2000 - 2004 to 3000- 3004.(Don't use LDA and STA instructions) [05]

- Q.5 (A) How address and data buses are demultiplexed? Explain. [04]
 (B) Write a program to provide the given on/ off time to three signal light (Green, Yellow and Red) and two pedestrian sign (Walk & Don't Walk). The signal light and signs are turned on/ off by the data bits of output port as shown below [04]

Lights	Data Bits	On time
Green	D ₀	15 Seconds
Yellow	D ₂	5 Seconds
Red	D ₄	20 Seconds
Walk	D ₆	15 Seconds
Don't Walk	D ₇	25 Seconds

- (C) Write the content of A, B, C, D, H, L register after executing following program. [02]
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2000: MVI A, 99h
2002: MVI B, 08h
2004: ADD B
2005: MOV C, A
2006: ADD C
2007: MOV D, C
2008: LXI H, 1234
200B: HLT

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OR

- Q.5 (A) Explain timing diagram of memory read operation of 8085 microprocessor.. [06]  
 (B) Explain programming model of 8086 microprocessor in brief. [04]

- Q.6 Attempt following questions. [10]  
 (A) Explain following instructions in brief.  
       (1) JZ (2) CMP (3) DAA (4) DAD (V) LDA  
 (B) How seven segment display is interfaced with 8085 microprocessor? Explain.

END OF PAPER