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5th Sem. / Electrical Engg./ PSE

Subject : Digital and Microprocessor

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

Q.1 a) Universal gates

b) BCD number

c) Radix in number system

d) Truth table

e) POS

f) Demultiplexer

g) Combination circuit

h) Flip-flop

i) Race condition

j) Registers

k) Flash memories

l) Stack pointer

m) Interrupt

n) STA2015H

o) A+1=? and A.I=?

p) $(FF)_{16} + (1)_{16}$=

q) 8251 chip

r) Digital signal

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

Q.2 i) What are the application of analog to digital converter.

ii) What are the merits of SRAM

iii) Find The addition using 2's compliment method. 10110010 and 10111000

iv) Convert each of the following to decimal number

a) $(AB9)_{16}$ b) $(140)_8$

v) Draw NOT gate using NAND gate

vi) Draw the logic diagram and truth table for EXOR gate

vii) Apply DeMorgan's theorem to

a) $\overline{A\bar{B}(C+\bar{D})}$ b) $\overline{AB} + \overline{CD}$

viii) Simplify using karnaugh map

$Y = (0,1,5,7,8,9,13,15)$

ix) Draw the logic circuit diagram of half adder.

x) Explain the working principle of LED.

xi) Write the application of flip-flop.

xii) Differentiate between asynchronous and synchronous counter.

xiii) What are the advantage of 16 bit processor over 8 bit processor.

xiv) What are data transfer techniques used between I/O and microprocessor.

xv) Write a program for adding two 8 bit numbers.

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.3 Draw the pin diagram of 8085 microprocessor. Describe in detail the signals on following pin No. 3,6,10,11,30,31,32,39

Q.4 Explain the working of R-2R D/A converter with the help of neat diagram.

Q.5 What are shift Register? Explain operation of parallel shift register.

Q.6 Explain the working of JK flip flop with the help of truth table and logic diagram.

Q.7 Write short note on following:-

i) De Morgan theorem

ii) 8259 chip