F.Y. B. SC. (Computer Science) SEM –II (CBCS - 2016 COURSE) :
WINTER - 2018
SUBJECT : PRINCIPLES OF DIGITAL ELECTRONICS -II

W-2018-0911

Day : Saturday
Date : 27/10/2018

Time : 03.00 PM TO 06.00 PM
Max. Marks : 60

N. B. :

1) All Questions are **COMPULSORY**
2) Figures to the right indicate **FULL** marks.
3) Use of scientific calculator is **ALLOWED.**

Q.1 A) Select the correct option and rewrite the complete sentence. **(06)**

a) The number of states counted by MOD-10 counter are _____.

i) 5 ii) 10
iii) 8 iv) 6

b) Full form of SIPO is _____.

i) Serial –in—parallel –out ii) Sustain –in parallel – out
iii) Simplify –in—parallel –out iv) Serially –in—Process –out

c) One shot multivibrator is also known as _____ multivibrator

i) Bistable ii) Astable
iii) Monostable iv) None of these

d) The terminal count for a 4-bit computer in up mode is _____.

i) 1111 ii) 1010
iii) 0000 iv) 1110

e) The condition for J-K flip-Flop to toggle is _____.

i) J=1, K=0 ii) J=0, K=0
iii) J=1, K=1 iv) J=0, K=1

f) EPROM stands for _____.

i) Electrically Programmable Read Only Memory
ii) Erasable Peripheral Read Only Memory
iii) Erasable Programmable Read Only Memory
iv) Electrical Peripheral Read Only Memory

B) Answer the questions in one sentence. **(06)**

a) Draw symbol for D flip–flop.
b) What is the function of clear input in flip–flop.
c) State the types of shift registers.
d) Write any two application of astable multivibrator.
e) State the limitation of static RAM.
f) What is race around condition in JK flip – flop.

Q.2 Answer any **THREE** of the following. **(12)**

a) Explain the concept of Static RAM and Dynamic RAM

b) Write a note on 4 bit PIPO shift register

c) Define modulus of a counter. Explain the action of MOD-10 counter using IC 7490

d) Explain the concept of asynchronous counter and synchronous counter.

Q.3 Answer any **FOUR** of the following . **(12)**

a) Explain any three applications of ROM

b) A timer 555 is configured to turn in as table mode with R_s= 4kΩ and R_B= 4kΩ C= 0.01 μF. Determine the frequency of the output and duty cycle

c) With necessary diagram explain the action of ring counter.

d) Draw diagram for a asynchronous up-down counter.

e) Give the classification of memory.

Q.4 Answer any **TWO** of the following . **(12)**

a) Explain the action of 4 bit shift register in serial –in-serial-out mode.

b) Explain the working of IC555 as bistable multivibtator .

c) Using NOR gates explain the action of RS flip-flop.

Q.5 Answer any **TWO** of the following. **(12)**

a) Explain the action of 3 bit down counter using logic diagram, waveform and truth table

b) Construct the following counters using IC 7490:

i) MOD 3

ii) MOD 5

c) Explain the action of JK master slave Flip-Flop with neat diagram.

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