F.Y.B.SC. (COMPUTER SCIENCE) SEM –II (2014 COURSE) :
SUMMER - 2018
SUBJECT : DIGITAL ELECTRONICS – II

Day : **Wednesday** Time : **03.00 PM TO 05.00 PM**
Date : **25/04/2018** **S-2018-0841** Max. Marks : 40

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labeled diagrams **WHEREVER** necessary.

Q.1 Answer **ANY TWO** of the following: **[10]**

a) Construct the following counters using IC 7490:
i) MOD 2 **ii)** MOD 10

b) Explain the action of 3-bit shift register in serial-in-serial-out mode.

c) Explain the monostable mode of IC 555. Draw the necessary waveforms.

Q.2 Answer **ANY TWO** of the following: **[10]**

a) Describe working of J-K flip-flop with logic diagram and truth table.

b) Explain four bit synchronous counter in detail.

c) Write short notes on : PROM and EPROM.

Q.3 Answer **ANY TWO** of the following: **[10]**

a) Explain R-S flip-flop using NAND gates with symbol, logic diagram and truth table.

b) A timer 555 is configured to turn in astable mode with $R_A = 4k\Omega$, $R_B = 4k\Omega$ and $C = 0.01\mu F$. Determine the frequency of the output and duty cycle.

c) What is a ring counter? Explain with diagram and truth table 4-bit ring counter.

Q.4 Answer **ANY FIVE** of the following: **[10]**

a) State the truth table for T-flip-flop and D-flip-flop.

b) What is a bistable multivibrator? Give any one application.

c) What is race around condition in J-K flip-flop? How is it avoided?

d) Define modulus of a counter. Find the number of flip-flops required for MOD5 counter.

e) Draw input and output waveforms of bistable multivibrator.

f) State the difference between synchronous and asynchronous counters.

g) Define Preset and Clear terminals in flip-flop.

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