Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech.**
PCEC4202

4th Semester Back Examination 2017-18
DIGITAL ELECTRONIC CIRCUIT
BRANCH : AEIE, BIOMED, CSE,
ECE, EEE, EIE, ELECTRICAL, ETC, IEE, IT, ITE
Time : 3 Hours
Max Marks : 70
Q.CODE : C667

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Q1 **Answer the following questions :** **(2 x 10)**

a) Convert decimal number 214 to its octal equivalent.
b) Draw the logic symbols and truth tables of universal logic gates.
c) Solve the given expression using consensus theorem.
A'B'+AC+BC'+B'C+AB
d) Define the terms: mInterm and maxterm.
e) Define the terms: entity and attribute.
f) Write the behavioral model of a simple AND gate.
g) Differentiate between inertial and transport delays.
h) What is VLSI and what are its advantages?
i) Draw the logic symbols of Multiplexer and Demultiplexer.
j) Write any four differences between RAM and ROM.

Q2 **a)** Subtract 101011_2 from 111001_2 using 1's complement and 2's complement methods. **(5)**
b) Convert the given expression in standard POS form. **(5)**
Y = A.(A+B+C)

Q3 **a)** Show the realization of all logic gates using universal logic gates. **(5)**
b) Reduce the following function using Karnaugh map method. **(5)**
$F(A,B,C,D) = \sum m(1, 3, 7, 11, 15) + \sum d(0, 2, 4)$

Q4 **a)** Write the behavioral model of a 4X1 Mux. **(5)**
b) Explain various data types used in VHDL. **(5)**

Q5 **a)** Draw the circuit diagram of CMOS inverter and explain its operation. **(5)**
b) What are the advantages with CMOS logic? **(5)**

Q6 **a)** What are the differences between sequential and combinational networks? **(5)**
b) Draw the logic diagram of 2 bit binary adder and explain its operation. **(5)**

Q7 Draw the logic diagram of master slave flip-flop and explain its operation. **(10)**

Q8 **Write short answer on any TWO :** **(5 x 2)**

a) Canonical logic forms
b) MOSFET design rules.
c) Flip-Flops
d) State machines