

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2014
(Third Semester)
Branch – ELECTRONICS

DIGITAL PRINCIPLES & APPLICATIONS

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 What do you mean by binary number system?
- 2 Convert $(246)_{10}$ into octal.
- 3 Draw the truth table for 2-input Ex-OR gate.
- 4 Give the equivalent statement of duality.
- 5 What is the 2's complement of $(0000\ 1111)$?
- 6 What is called multiplexer?
- 7 Using NOR Gate construct FF circuit.
- 8 Define decade counter.
- 9 Find the maximum conversion time for a 12 bit counter type AD converter using a 1MH_2 clock.
- 10 What do you mean by D/A conversion?

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Convert $(25)_{10}$ into octal binary and hexadecimal numbers.
OR
b Write a note on Excess 3 code.
- 12 a Discuss the Basic laws of Boolean Algebra.
OR
b Realize the AND logic using NAND, NOR gates only.
- 13 a Draw the full adder circuit and write the truth table.
OR
b With a neat sketch explain the working of decoder.
- 14 a Explain the working of RS flip flop with truth table.
OR
b Describe the operation of ring counter with neat circuit diagram.
- 15 a Describe the counter type A/D converter.
OR
b With neat circuit diagram explain the binary ladder network.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Convert the following numbers into corresponding numbers;
a) 55_{10} into excess 3 code b) $(123)_{10}$ into binary c) $(127)_8$ into decimal
- 17 State and prove the Demorgan's theorem.
- 18 With a neat block diagram explain the function of parallel adder. Give one example.
- 19 Explain the function of ripple counter and draw the timing diagram.
- 20 Explain the functions of successive Approximation method of A/D conversion.

Z-Z-Z

END