

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2018
(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 is the decimal number for binary number $(1010)_2$?
- 2 Define Gray Code.
- 3 Give the truth table for 2 inputs NOR gate.
- 4 State Duality theorem.
- 5 What is Demultiplexes?
- 6 What is signed binary number?
- 7 Define Register.
- 8 What is forbidden?
- 9 Draw the state diagram of mod 5 counter.
- 10 Define Resulation.

SECTION - B (25 Marks)

Answer ALL Questions

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

- 11 a Write a short note on Excess three, EBCDIC, and Gray codes.
OR
b Explain the procedure for BCD addition.
- 12 a Explain the distributive laws of Boolean algebra.
OR
b Give an example and explain the don't care condition in K-map.
- 13 a Perform the following function using is complement.
(i) $(+17)+(-14)$ (ii) $(+12)+(-18)$
OR
b Draw the logic diagram of a 1 out of 4 decoder and explain its working.
- 14 a Explain the function of a four stage ring counter using J_K flip flop.
OR
b Design a synchronous mod 3 counter and explain its working with its truth table.
- 15 a Explain with diagram of the binary weighted resistor D/A converter.
OR
b Draw the counter type A/D converter and explained it.

SECTION - C (30 Marks)

Answer any THREE Questions

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

- 16 Find the Hexa-decimal equivalent of decimal
(i) $(88.525)_{10}$ (ii) $(139)_{10}$ (iii) $(45.65)_{10}$
- 17 State and prove Demorgan's theorem.
- 18 Explain the operation of multiplexer with neat circuit diagram.
- 19 Explain RS flip flop and SR flip flop using NOR gates.
- 20 Describe the counter type A/D converter using operational amplifiers.