**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**BSc DEGREE EXAMINATION DECEMBER 2022**
(Third Semester)

Branch – **ELECTRONICS**

**DIGITAL PRINCIPLES AND APPLICATIONS**

Time: Three Hours Maximum: 50 Marks

**SECTION-A (5 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (5 x 1 = 5)

1 Convert the following binary numbers to decimal number(101001)
(i) 39 (ii) 35
(iii) 44 (iv) 41

2 _____ are universal logic gates
(i) NAND and NOR gates (ii) NOT gates and EX-OR gates
(iii) AND gates and NOT gates (iv) OR gates and EX-OR gates

3 The difference between half adder and full adder is_____
(i) Half Adder has two inputs While full adder has four outputs (ii) Half adder has one output. while full adder has two outputs
(iii) Half adder has two inputs while full adder has three inputs (iv) Half adder has two inputs while full adder has one outputs

4 Race around condition can be removed by using the combination of____
(i) Half adder (ii) Multiplexer
(iii) Master slave J-K flip flop (iv) S-R flip flop

5 Binary ladder network is better than resistive divider for D/A conversion because _____
(i) It requires lesser number of
(ii) It requires resistors having two values resistors only
(iii) It is cheaper
(iv) It gives better accuracy

**SECTION - B (15 Marks)**
Answer **ALL** Questions
**ALL** Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a What is meant by octal number system? Define with example.
OR
b Expand the following terms ASCII, EBCDIC.

7 a Draw and write truth table of universal gates.
OR
b State communicative and associative law.

8 a What do you mean signed binary give with one example?
OR
b Compare half adder with half subtractor.

9 a List out the types of shift registers.
OR
b Distinguish between synchronous and asynchronous Counter.

10 a What is meant by D/A converter?
OR
b What do you mean by simultaneous conversion?

**Cont...**

## SECTION -C (30 Marks)

Answer **ALL** questions
**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Convert following decimal numbers into binary.
(1) 28 (2) 45 (3) 56 (4) 76 (5) 108 (6) 115

OR

b Discuss the following with one example
(a)octal (b)Hexadecimal (c) Excess-3 code.

12 a Sketch and explain the operation of EX-OR gate with its truth table.

OR

b Enumerate points on don't care condition.

13 a Convert the following numbers into 1's and 2's complement using BCD Code.
(1) 95 (2) 15 (3) 45 (4) 38 (5) 98.

OR

b Describe the operation of parallel binary adder with example

14 a Explain the working of serial out shift register with diagram.

OR

b Narrate on BCD counter with diagram.

15 a Elaborate the operation of weighted resistor type D/A converter.

OR

b Outline the function of dual slope type A/D converter.

Z-Z-Z END