**RAJ KUMAR GOEL INSTITUTE OF TECHNOLOGY & MANAGEMENT, GZB**

**1st Sessional Examination 2017-18 ( Odd Semester)**

**Subject Name: ANANALOG AND DIGITAL ELECTRONICS**

**Roll No.: Year/Branch**: **SECOND/EN Subject Code: REC-309**

**Max Time: 1Hours 30 Minute Max Marks: 50**

**SECTION-A**

**Q.1 Attempt all parts carries equal marks. Write answer of each part in short. (2x5=10)**

**(a)** Define Gray code with example.

**(b)** A 3 variable karnaugh map has\_\_\_\_\_\_\_ cells

 **(c)** State De Morgans theorem?

**(d)** Give an example of SOP form?

**(e)** The OR operations can be produced with two\_\_\_\_\_\_\_gates or three\_\_\_\_\_\_\_gates.

**SECTION-B**

**Note: Attempt any five questions from this section. (5x5=25)**

**Q2:** Convert the binary number into octal number 11011100.101010.

 **Q3**: Subtraction the binary numbers

1011 0110

1110 1001

**Q4**: Convert the binary number into Gray code. 110100

**Q5:** Simplify the Boolean expression



 **Q6**: Add the binary numbers:

0 1 1 0 1 0 1 0

0 0 0 0 1 0 0 0

1 0 0 0 0 0 0 1

1 1 1 1 1 1 1 1

 **Q7:** Convert the Hexadecimal number CD42 to binary number.

**Q8**: Convert the Gray code to binary. 110100

 **Q9:** Convert (i) 532.65)10 = ( ? )16 = ( ? )2

**SECTION-C**

**Note: Attempt any two questions from this section. (7.5x2=15)**

**Q10:** Simplify the Boolean expression F = (A + E + C) (A+ B+C)(A+E) . Realize the simplified expression using only NAND gates.

**Q11.** Find out the minimal expression for the switching function given below using the karnaugh map. Σm (A,B,C,D) = (0,1,4,5,6,7,12,14)

 **Q12.** Realize the following logic operations using only NAND gates

a) NOT gate b) AND gate c) OR gate d) NOR gate e) XOR gate f) XNOR gate