JC BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA, FARIDABAD

1st Sessional Examination (B.Tech – M31 – 3th Semester)

M.M = 15 Marks **Subject- Basic Electronics Engineering** **Time: 90 minutes**

General Instructions: All questions are mandatory

1) a) Differentiate between analog and digital signals. (mention 6 points). (2.0)
   b) Make Basic gates (AND, OR and NOT gate) from 2 universal gates (NAND and NOR gates. (3.0)

2) a) Draw the truth table, circuit diagram and equation of full adder (2.0)
   b) Minimize the following function in SOP minimal form using the K-Maps: (3.0)
   $F(A,B,C,D)= m(1,2,6,7,8,13,14,15) + d(3,5,12)$

3) a) Explain the working of full wave rectifier. Also draw the V-I Characteristics graph of PN Junction Diode, also write the PN Junction Formula explaining the meaning of each term. (3.0)

   b) Differentiate between intrinsic and extrinsic semiconductors. (4 points) (2.0)

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2nd Sessional Examination (B.Tech – M31 & M32 – Mechanical Engg. 3th Semester)

M.M = 15 Marks Subject- Basic Electronics Engineering Time: 90 minutes

General Instructions: All questions are mandatory

1) Describe the Integrator and Differentiator application of operational Amplifier in detail. (5) (CO2)

2) a) Minimize the following function in POS form using the K-Maps: (3) (CO4)

$$F(A,B,C,D) = pi(1,2,6,7,8,13,14,15) + d(3,5,12)$$

b) Draw the truth table, circuit diagram and equation of half subtractor. (2) (CO4)

3) Write a short note on: (Both Modulation and demodulation process)

a) Amplitude Modulation (AM) (b) Frequency Modulation (FM) (5) (CO5)