Registration No: | | | | | | | | | | |

Total Number of Pages: 2 **B.TECH**
FEEC2216

4th Semester Back Examination 2016-17
-ANALOG AND DIGITAL ELECTRONICS
BRANCH: CIVIL
Time: 3 Hours
Max Marks: 70
Q.CODE: Z993

Answer Part-A which is compulsory and any Five from Part-B.
The figures in the right hand margin indicate marks.

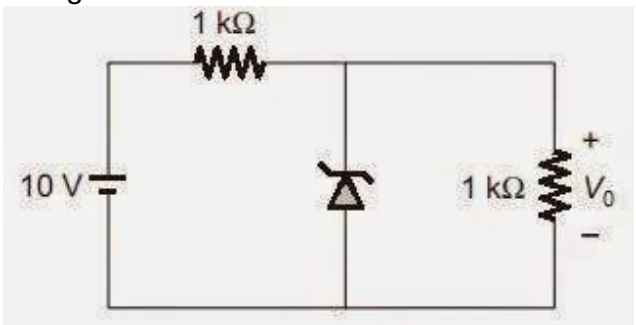
Part – A (Answer all the questions)

Q1 Answer the following questions: ***multiple type or dash fill up type*** **(2 x 10)**

a) State De-Morgan's theorems?
b) Define CMRR and slew rate.
c) Implement EXOR function using NAND gate only.
d) State ideal characteristics of OPAMP.
e) What is the need of biasing?
f) Define hybrid parameters of a transistor.
g) What is Miller's effect?
h) State the difference between PAL and PLA.
i) What is the significance of Gain-Bandwidth product?
j) Differentiate Edge Triggering and Level Triggering.

Part – B (Answer any five questions)

Q2 **a)** The 6Volt Zener Diode shown in the figure has zero zener resistance and a knee current of 5mA.Find the minimum value of R so that the voltage across it does not fall below 6 Volt. **(5)**



b) What is base width Modulation? Discuss its consequences. **(5)**

Q3 **a)** Explain the principle of RC-phase shift oscillator with neat circuit diagram **(8)**
b) Define Bark Hausen criteria of oscillation. **(2)**

Q4 **a)** Derive the maximum efficiency of a Class A Power amplifier. **(5)**
b) Explain how OPAMP works as a Integrator with proper diagram. **(5)**

Q5 **a)** Design and explain the operation of a carry look ahead adder. **(5)**
b) Design and explain two bit magnitude comparator. **(5)**

Q6 **a)** Explain the operation of 8×1 Mux and implement the following function using suitable Mux **(7)**
$F(A,B,C,D)=\sum m(0,1,3,5,6,7,8,9,11,13,14)$
b) Write characteristic table of JK Flip Flop **(3)**

Q7 **a)** Derive the expression for feedback voltage gain, input and output resistance of voltage series negative feedback amplifier. **(10)**

Q8 Write short notes on any two **(10)**
a) Clipper circuit
b) Instrumentation Amplifier
c) 555 timer
d) Fixed Bias Circuit