Mid-West University
Examinations Management Office
End Semester Examinations 2081

Bachelor level/ B.E. Hydropower/ 3rd Semester   Full Marks: 50

Time: 3 hours   Pass Marks: 25

Subject: Basic Electronics Engineering (EX201)

- *Attempt all the questions*
- *Figures in the margin indicate full marks.*
- *Assume suitable values, with a stipulation, if necessary.*
- *Candidates are required to answer the questions in their own words as far as possible.*

1. a. Define active and passive components. Find the value of resistance of color **Black Orange Green Silver**.   **[2+2]**

    b. Determine the current through the load resistance using Norton's theorem for the circuit shown in Figure.   **[4]**
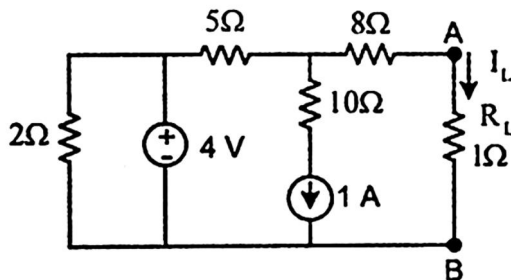
2. a. Explain Clampers and Clippers diode circuit with necessary circuit diagram?   **[3]**

    b. Calculate current and power delivered by Zener diode.   **[4]**
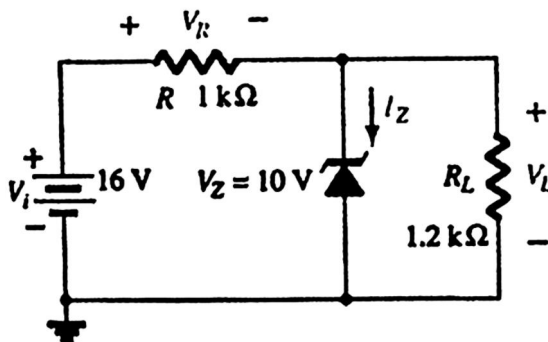
3. a. Explain the structure and operation of Deplection N-type MOSFET.   **[3]**

    b. For the circuit given below calculate all node voltages and branch currents.   **[4]**
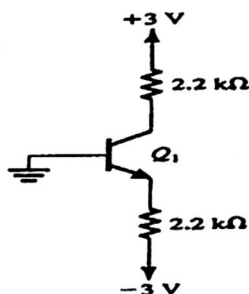
4. a. Explain inverting and non-inverting Op-Amp. Calculate the output voltage of operational amplifier differentiator circuit   **[2+3]**

    b. Calculate the oscillation frequency of square wave generator.   **[2]**

5. a Define antenna and list out its types. [2]

b. Explain FM and AM communication. [3]

6. a. State and proof De Morgan's theorem, Design (8X1) MUX circuit. [2+3]

b. What is sequential circuit. Explain the operation of SR flip-flop. [3]

c. Simplify the Boolean function by using K-map $F(x, y, z) = \sum(1,2,4,6,7)$. [2]

7. a. Define remote control with their applications. [3]

b. Write the difference between analog and digital instrumentation system. [3]

The End