|  |
| --- |
| Mid-West University**Examinations Management Office**End-Semester Examinations -2080Bachelor level / B.E. Civil / 2nd Semester Full Marks: 50Time: 3 hours Pass Marks: 25**Subject: Basic Electronics Engineering (EX421/EX101)**  |

* *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.** | Why are resistors, inductors and capacitors called passive elements? What do you mean by an ideal voltage Source?  | **[2]** |
|  **b.** | Find current flow in 3Ω resistance. Use superposition theorem to solve the problem.  | **[4]** |
| **2. a.**  | Explain the modeling of diode forward biasing. Draw the output waveform of full wave rectifier.  | **[3]** |
|  **b.** | Find the current $I\_{Z}$, assuming $V\_{Z}=9v$.  | **[4]** |
| **3. a.**  | Explain the structure and operation of enhancement type MOSFET.  | **[3]** |
|  **b.** | For the given circuit β=100, determine $I\_{B},I\_{C}$ and $V\_{CE}$ for the circuit given below.   | **[4]** |
| **4. a.** | State any four important properties of ideal Op-Amp. Draw the circuit diagram of differentiator using Op-amp and show the output.  | **[2+3]** |
|  **b.** | How do you define positive feedback? Draw the circuit for square wave generator and explain the principle of operation.  | **[1+3]** |
| **5. a.** | Differentiate between FM and AM communication. Draw and label the diagram of Optical fiber. | **[3]** |
|  **b.** | Define communication system. And describe communication system in brief with the complete block diagram. | **[3]** |
| **6. a.** | Simplify the expression using K-Map, F(X,Y,Z) = X'YZ+X’Y'Z+XYZ and realize it using logic gates. | **[3]** |
|  **b.**  | Mention the types of flip-flops and explain the operation of J-K flip-flop with necessary diagram. | **[4]** |
|  **c.**  | State De-Morgan's theorems with example in each case. | **[3]** |
| **7. a.** **b.**  | What is instrumentation system? Describe the instrumentation system with block diagram.Explain briefly about remote control. | **[3]****[2]** |

 **The End**