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Code No: EC1503

GEC-R14

II B. Tech I Semester Supplementary Examinations, May 2016

BASIC ELECTRONICS
(Information Technology)

Time: 3 Hours

Max. Marks: 60

Note: All Questions from **PART-A** are to be answered at one place.

Answer any **FOUR** questions from **PART-B**. All Questions carry equal Marks.

PART-A

6 × 2 = 12M

1. Differentiate active and passive components, with examples.
2. Distinguish between transition and diffusion capacitance existing in PN diode.
3. How does a zener diode differ from a PN diode?
4. Write the necessity of electronic filters at the output of rectifiers.
5. Compare CB, CE and CC configurations of transistor.
6. Differentiate between depletion type and enhancement type MOSFETs.

PART-B

4 × 12 = 48M

1. a) Classify materials based on energy band diagrams. Bring out the important properties of semiconductors. (8M)
b) What do you mean by doping? Differentiate between Intrinsic and Extrinsic semiconductors. (4M)
2. a) What is biasing? Explain forward and reverse biasing of PN junction diode. (9M)
b) The reverse saturation current of a silicon p-n junction diode is $10\mu\text{A}$. Calculate the diode current for the forward bias voltage of 0.6V at 25°C . (3M)
3. a) Explain the operation of tunnel diode and its characteristics with neat diagram. (8M)
b) Write the working principle of optoelectronic devices. Write a note on photodiode. (4M)

4. a) Draw full wave rectifier circuit and explain its working. Derive the expression for ripple factor and efficiency. (9M)
- b) What are filters? Discuss its types. (3M)
5. a) Explain input and output characteristics in CE configuration of an NPN transistor. (8M)
- b) Explain the operating point of a transistor. (4M)
6. a) Compare BJT, JFET and MOSFET. (4M)
- b) Write the classification of FET. Explain the construction and working of N-channel JFET and explain its characteristics. (8M)
