**Assignment 1: EC21101**

Draw, label and explain briefly in your own words the following:

1. Symbol and V-I characteristics of a simple germanium diode

2. Symbol and V-I characteristics of a silicon zener diode

3. Drift and diffusion in a semiconductor

4. Energy band diagram of silicon material as a semiconductor

5. P-type and N-type semiconductors

6. Block diagram of a regulated linear power supply by using a full wave rectifier.

7. Simple positive voltage clipper circuit

8. Simple positive voltage clamper circuit

9. Bidirectional voltage clipper circuit

10. First and second order RC low pass filters

11. Second order RC high pass filter with frequency response curve

12. First order RC band pass filter with frequency response curve

13. NPN BJT structure (cross-section of a practical transistor)

14. Early voltage with respect to V-I characteristics

15. Common base circuit and characteristics using a PNP BJT.

16. Small signal equivalent circuit of a CE amplifier using a resistor divider bias.

**Instructions/ Notes:**

* Submission date (final): Monday, September 09, 2019 (during the class schedule only).
* Write your name and roll number on the top of the first page of your answer sequence.
* The assignment questions must be solved by your own on A4 or simple notebook paper sheets that are stapled well and/ or tied together firmly. Any loss of answer page(s) is students' responsibility. Write in brief, answer all the points, and please don't waste paper.
* Customized answers are expected. Don't copy the answers from each other. Similarities in answers/ solution will result in deduction of marks from all the students who are submitting similar answers. Marks will be deducted in random or uniform order for any detected cases, even for partial answers that are being copied.