Your Actual First Task In RAS :)

Target:

Get to know:

- Transformer
- Diodes
- Full & Half bridge rectifier
- Zener diodes
- Capacitors

Resources:

- **Circuit Learning The - Work? Transformers Electronic do How**
- **What is a diode? A simple animated overview | Basic Electronics**
- **Half Wave Rectifiers - Practical Demonstration | Basic Electronics**
- **Full Wave Rectifier - Conceptual Review | Basic Electronics**
- **What is a zener diode and how does it work? | Intermediate Electronics**
- **Introduction to Capacitors - Basic Circuits #17 | Electronics Tutorials**

Problems:

1- Design a DC power supplier that converts 220V AC to 12V 500 mA DC.
//Use Proteus (A software to simulate electrical circuits)

2- Can you plot the input and output voltage?

3- (Bonus) Can you plot the input and output Signal for the Capacitor in the circuit?

4- Can Transformers operate efficiently with both AC and DC, or are they designed for exclusive use with one of these power sources? Explain the factors determining their compatibility.

5- (Bonus) Provide the formula for a smoothing capacitor.

Send a compressed file named "Task 2 – Your full name" with the following data:

- Your proteus simulation file
- A picture (screenshot of the circuit) or a pdf of the schematic of the circuit
- A two-minute or less video of you explaining the circuit and the use of each component

Note: Make sure the size of compressed file does not exceed **25Mb**.

Evaluation:

Circuit design ⇒ 7 points
Explanation video ⇒ 3 points

Deadline:

3 Days //Saturday – Dec 2th, 2023 at 23:00