SIR ARTHUR LEWIS COMMUNITY COLLEGE

ENGINEERING AND THE CIRCULAR ECONOMY

ACADEMIC YEAR (2024/2025) – SEMESTER ONE

END OF SEMESTER EXAMINATION

TUTOR (S)	**:**	**Mr Lindsley Philbert**
PROGRAMME TITLE	**:**	**Electrical Engineering**
COURSE TITLE	**:**	**Electronics II**
COURSE CODE	**:**	**ELE201**
LEVEL	**:**	**Associate Degree/Year One**
PAPER	**:**	**One**
DATE	**:**	**Tuesday, 10th December 2024**
COMMENCEMENT TIME	**:**	**1:00 p.m.**
DURATION	**:**	**2 Hours**
INVIGILATOR(S)	**:**	**N. Fevrier, R. Joseph, C. Gedeon, M. John, D. Alexander**
ROOM(S)	**:**	**LFT-1R-05**

GENERAL INFORMATION AND INSTRUCTIONS

- This paper consists of One (1) Section with eleven (11) questions. **Students are required to answer all questions on the foolscap provided. Marks are awarded accordingly.**
- Students must sign **IN** and **OUT** on the examination class list.
- Students must **not** write their names on their answer sheets, only their ID number.
- Students are reminded to read **all** questions and instructions in each section very carefully.
- Please number your responses accordingly.
- **Note: Bags, Books as well as writing paper not given by the invigilator should be deposited at the front of the examination room or as otherwise indicated.**
- **All cell phones must be turned off during the exam.**

DO NOT TURN THIS COVER SHEET UNTIL
YOU ARE TOLD TO DO SO!!!

SECTION A

Answer all questions on the foolscap provided.

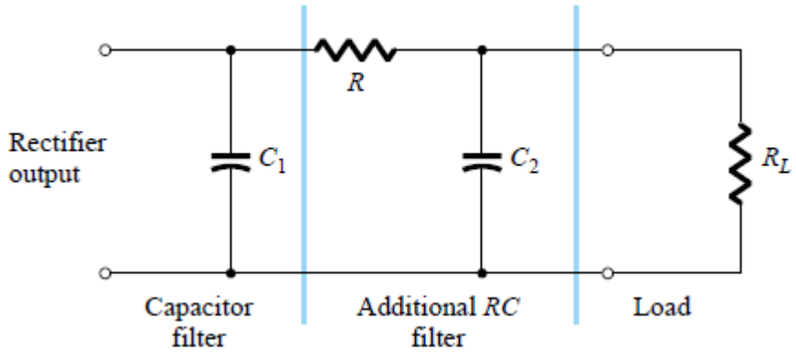
1) Sketch the block diagram of a complete power supply and briefly discuss what happens in each of the sections. **(10 marks)**

2) Using a dc and ac voltmeter to measure the output signal from a filter circuit, we obtain readings of 25 V dc and 1.5 V rms.
   i. Calculate the ripple of the filter output voltage. **(3 marks)**

3) A dc voltage supply provides 60 V when the output is unloaded. When connected to a load, the output drops to 56 V.
   i. Calculate the value of voltage regulation. **(3 marks)**

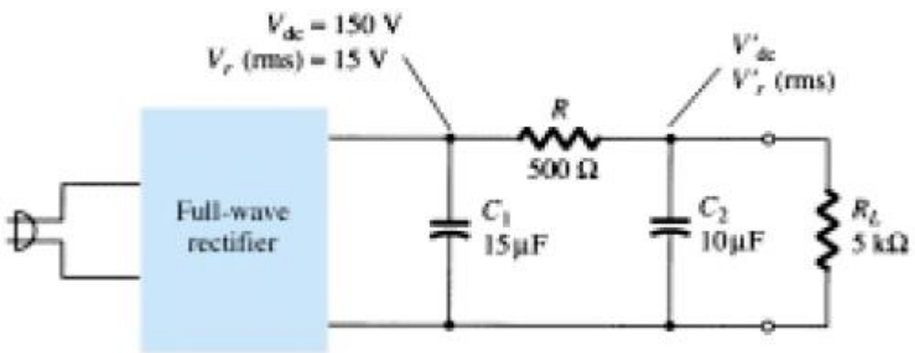
4) Calculate the ripple voltage of a full-wave rectifier with a 100µ F filter capacitor connected to a load drawing 50 mA. **(3 marks)**

5) Below is a circuit of a RC filter. Briefly discuss how it works. **(5 marks)**



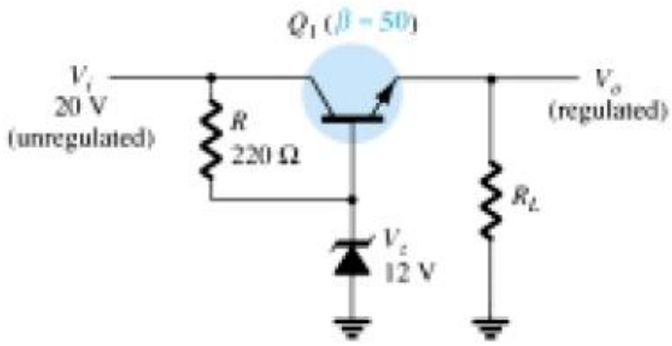
6) Calculate the dc voltage across a 1-k ohm load for an RC filter section (R =120 ohms, C =10µ F). The dc voltage across the initial filter capacitor is Vdc 60 V. **(4 marks)**

7) Calculate the AC and DC components of the output across the load RL in the circuit below.
   i. Calculate the ripple of the output waveform **(6 marks)**

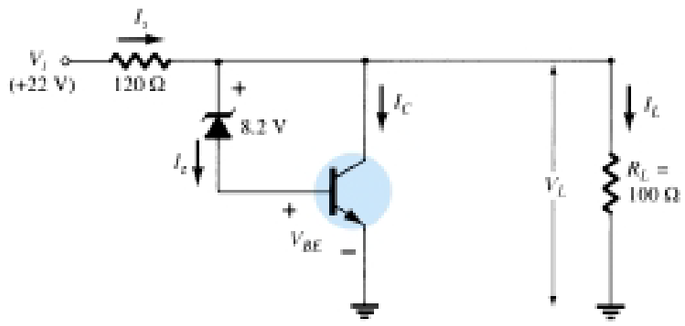


8) With a label diagram discuss the operation of a series voltage regulator **(10 marks)**

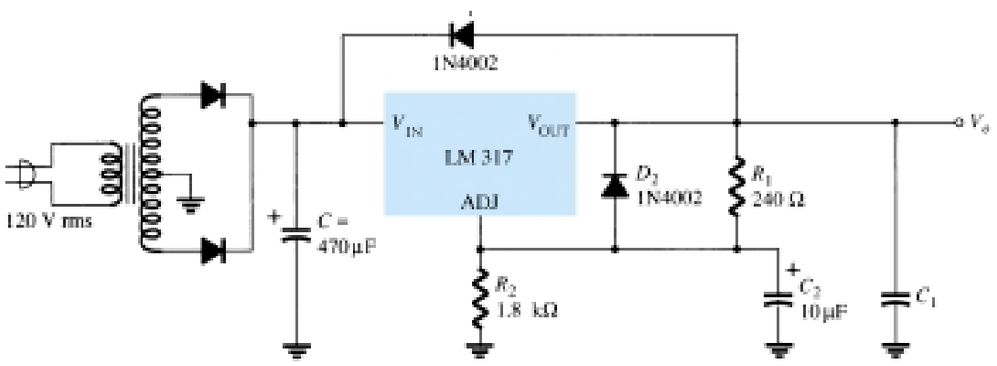
9) Calculate the output voltage and Zener current in the regulator circuit below. RL = 1 kilo ohms **(10 marks)**



10) Determine the regulated voltage and current for the shunt regulator below. **(8 marks)**



11) Determine the regulated output voltage of the circuit below. **(6 marks)**



Total (68 Marks)

END OF EXAMINATION!!!