

Fakulti: <b>FAKULTI KEJURUTERAAN ELEKTRIK</b>	
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**SEE 4722**

**FAKULTI KEJURUTERAAN ELEKTRIK  
UNIVERSITI TEKNOLOGI MALAYSIA  
KAMPUS SKUDAI  
JOHOR**

**MAKMAL**

**INSTITUT VOLTAN DAN ARUS TINGGI  
PROBLEM (Experiment 08)**

**Development of a Portable High Voltage power Supply using  
Flyback Transformer**

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## **Introduction**

Nowadays, high voltage power supplies are become a common known device. High voltage power supplies are a key component in many analytical instruments. By the nature of analytical applications, test equipment, methods and data must show consistent results. The high voltage power supply, being a critical component within the instrument, must perform consistently also. The high voltage power supply has unique concerns which differentiate it from conventional power supply requirements. By understanding these concerns, the designer and user of Analytical Instrumentation can gain beneficial knowledge.

## **Problem Statement:**

High voltage power supply can be used for various implementations such as testing of power system equipment, includes determination of insulation strength of the high voltage equipments, generation of electrical discharges and so many other applications. Unfortunately, in most situations a fixed and very bulk of high voltage system has been used to carry out the duty. Therefore, it is difficult to conduct a small testing or experiment out of laboratory compound. Thus this laboratory session is proposing the development of a simple portable high voltage power supply using flyback transformer. This portable H.V power supply are hopefully can be used in future students testing and experimental work.

In this laboratory session, the students are required to develop a portable high voltage power supply that is capable to generate a minimum of 10 kV output voltage. The safety aspect of high voltage system should be put into priority when developing a simple portable H.V power supply.

## **Trigger**

- 1) What is flyback transformer?
- 2) What is the suitable driver circuit to drive the flyback transformer?
- 3) What the effects of the above parameters to estimate the long life of the power supply?
- 4) What should you do so that the performance of the power supply can be maintained in good condition for the long run of the power supply live?