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- Answer all the following questions
 - Illustrate your answers with sketches when necessary
 - The exam. consists of one page
- No. of questions: 3
 - Total Mark: 50 Marks
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1. "In industrial testing and research laboratories, it is essential to measure the voltage and current". **Discuss** the importance of measuring process in high voltage engineering then **Explain** the difference between Testing and Measurement in high voltage applications. **(10 marks)**
2. "Instrument transformers are special versions of transformers in respect of measurement of current and voltages of an electrical system and are responsible to give feedback signals to the relays to enable them to detect abnormal conditions". **Explain** this statement, then **Discuss** the main tasks of instrument transformers – their different types - their constructions – their basic theory of operation. **(20 marks)**
3. "In industrial testing and research laboratories, there are different methods for measuring and monitoring under high voltage conditions". **Mention** the different techniques used for High voltage Measurement, then **Explain** Two of them. **(20 marks)**

Best Wishes

Prof. Dr. Nagat M. Kamel
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