

**Cork Institute of Technology**  
**Bachelor of Engineering in Building Services Engineering**  
**(National Diploma in Engineering in Building Services Engineering)**

(NFQ – Level 7)

**Summer 2005**

**Electrotechnology – Paper 1**

**(Time: 3 Hours)**

Instructions

Answer FIVE Questions

All Questions carry equal marks.

Examiners: Mr. S. Beljevic  
Dr. N. J. Hewitt  
Mr. T. Dunne

- Q1. (a) Using a sketch outline the theory in relation to charge separation in the storm cloud.  
(6 marks)
- (b) Explain what is meant by the term rolling sphere and why is it important when designing lightning protection system?  
(8 marks)
- (c) Outline and explain the most important factors taken into consideration for the lightning protection?  
(6 marks)
- Q2. Relative to the protective relay:
- (a) Name four general function of a relay.  
(4 marks)
- (b) Name at least five incoming signal to a relay.  
(4 marks)
- (c) Name four basic requirements that must be taken into account when designing the protection system, and briefly explain each of them.  
(8 marks)
- (d) Name at least four principals that must be taken into account when designing the protective relays.  
(4 marks)

# Electrotechnology N4 August 2014 Question 5

**Institute of Electrical and Electronics  
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Publications of the National Institute of Standards and Technology ... Catalog National Institute of Standards and Technology (U.S.), National Institute of Standards and Technology (U.S.). Information Resources and Services Division, 1994

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