

1933

## Drawing of Electrical Design (4th Year): Technical School Examinations 1933

Department of Education: Technical Instruction Branch

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# COURSE IN ELECTRICAL ENGINEERING.

(56A)

AN ROINN OIDEACHAIS  
(Department of Education).

BRAINSE AN CHEÁRD-OIDEACHAIS  
(Technical Instruction Branch).

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TECHNICAL SCHOOL EXAMINATIONS.  
1933.

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DRAWING OF ELECTRICAL DESIGN.  
(Fourth Year.)

*Tuesday, May 23rd—8.30 to 10 p.m.*

*Examiner—R. G. ALLEN, ESQ, B.SC., A.R.C.SC.I., M.I.E.E.*

*Co-Examiner—PEADAR A. MACCIONNAITH, M.SC., A.C.SC.I.*

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## GENERAL INSTRUCTIONS.

You are carefully to enter on the Answer Book and Envelope supplied your Examination Number and the subject of examination, but you are not to write your name on either. No credit will be given for any Answer Book upon which your name is written, or upon which your Examination Number is not written.

You are not allowed to write or make any marks upon your paper of questions.

You must not, under any circumstances whatever, speak to or communicate with another candidate; and no explanation of the subject of the examination may be asked for or given.

You must remain seated until your answer-book has been taken up, and then leave the examination-room quietly. You will not be permitted to leave before the expiration of twenty minutes from the beginning of the examination, and will not be re-admitted after having once left the room.

If you break any of these rules, or use any unfair means, you are liable to be dismissed from the examination, and your examination may be cancelled by the Department.

*One and a half hours are allowed for this paper. Answer-books, unless previously given up, will be collected at 10 p.m.*

*Design approximately the main dimensions and draw to scale a representative view of one of the following :—*

1. The armature core for a single phase alternator.  
Data given :—

Output	...	...	...	...	200 K.W.
Voltage	...	...	...	...	5,000
Cycles per second	...	...	...	...	50
Power factor	...	...	...	...	0.8
Speed	...	...	...	...	300 R.P.M.

The method of clamping the laminations should be shown.

2. The starter for the rotor of a three phase induction motor. Data given :—

Full load stator current	...	...	80 amps
Ratio of the number of stator to rotor conductors	...	...	4
Rotor phase resistance	...	...	0.03 ohm.
Full-load slip	...	...	4 per cent.
Starting torque	...	...	full load value.

The brush-lifting gear should also be shown.

3. The lay-out of a sub-station for A.C. lighting and power. Data given :—

System	...	...	Three phase four-wire
Number of 3 phase transformers	...	...	3
Transformation	...	5,000 to 346 and 200 volts.	
Cycles per second	...	...	50
Output	...	...	6,000 K.W.

Power is to be supplied at 346 and lighting at 200 volts. The main panel equipment and wiring should be drawn.