



1933

# Machine Drawing: (1st Year): Technical School Examinations 1933

Department of Education: Technical Instruction Branch

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# COURSES IN MECHANICAL ENGINEERING.

(57.)

## AN ROINN OIDEACHAIS.

(Department of Education.)

## BRAINSE AN CHEÁRD-OIDEACHAIS.

(Technical Instruction Branch.)

### TECHNICAL SCHOOL EXAMINATIONS.

1933.

#### MACHINE DRAWING.

(First Year.)

Wednesday, May 31st—7 to 10 p.m.

Examiner—ERNEST E. JOYNT, ESQ., M.I.MECH.E.

Co-Examiner—J. P. HACKETT, ESQ., B.E., A.R.C.S.C.I.

#### 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 must not have with you any book, notes, or scribbling paper.

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 commencement 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.

Three hours are allowed for this paper. Answer books, unless previously given up, will be collected at 10 p.m.

#### INSTRUCTIONS.

Read the General Instructions on page 1.

(a) Written answers and freehand sketches must be given in the answer book, the drawing-paper being *only* used for finished drawings of Question No. 2.

(b) Drawings and sketches may be finished in *pencil*.

(c) Answers to questions must be written in *ink*.

(d) Write the number of the question distinctly in the margin of your paper before the answer.

1. Bearing.—A small cast iron half bearing is provided. Make fully dimensioned freehand sketches of the detail neatly arranged and giving complete information as to its size and shape.

[30 marks.]

2. Coupling.—The accompanying drawing gives full particulars of the separate parts of a cast iron flange coupling for four-inch shafting. Show the parts united in position and draw two views to a scale of half full-size, as follows:—

(a) Side elevation, the upper half to be a sectional view, the lower half to be an outside view.

(b) End view, the upper half to be a view of the back looking in the direction of the arrow, A; the lower half to be a view of the inner face, B.

Show the shaft ends keyed in position, and show one bolt and nut only in the upper part of each view.

[60 marks.]

One only of the following questions is to be attempted.

3. Stud.—Make a neat sketch of a  $\frac{3}{4}$ -inch stud and describe how it is screwed into position.

[10 marks.]

4. Riveted Joint.—Two plates  $\frac{3}{8}$ -inch thick are to be connected by means of rivets,  $\frac{3}{4}$ -inch diameter. Sketch a suitable single-riveted lap joint, stating the pitch and the distance from the centre of the rivets to the edge of the plate.

[10 marks.]

5. Crank Pin.—Describe with the aid of a sketch any one method by which the crank pin may be secured in the boss of an overhung crank.

[10 marks.]

