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Organic Chemistry (4th Year): Technical School Examinations 1934

Department of Education: Technical Instruction Branch

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COURSES IN APPLIED CHEMISTRY.

AN ROINN OIDEACHAIS.
(Department of Education.)

(45)

BRAINSE AN CHEARD-OIDEACHAIS.
(Technical Instruction Branch.)

TECHNICAL SCHOOL EXAMINATIONS.
1934.

ORGANIC CHEMISTRY.
(Fourth Year.)

Friday, May 11th—7 p.m. to 10 p.m.

Examiner—A. G. G. LEONARD, ESQ., PH.D., F.R.C.S.C.I., F.I.C.

Co-Examiner—SEOSAMH Ó CIARDHUBHÁIN, M.S.C.

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 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.

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.

- SIX questions only may be attempted.
- Equal values are attached to the questions.
- Answers must be written in INK.
- Write the number of the question distinctly, in the margin of the paper, before the answer.
- Wherever possible, chemical changes should be indicated by equations, and laboratory or factory operations should be illustrated by sketches.

1. Describe in detail how you would test an organic compound for presence of nitrogen, sulphur, and chlorine.

2. How may ethane and ethylene be prepared? Give their graphic formulæ and compare their chemical properties.

3. Give a concise account of the brewing industry.

4. What is a disinfectant? Give the names and formulæ of any two organic disinfectants and describe their preparation.

5. The aldehydes as a class are represented by the formula $R.CHO$ and the ketones by the formula $R_2R_2.CO$. Show how the general properties of these substances accord with the formulæ.

6. How do tallow, margarine, and butter differ in composition? Describe the manufacture of soap.

7. Explain the meaning of the terms—(a) isomerism, (b) esterification, (c) halogen carrier, (d) destructive distillation, (e) diazotization. Give an example in each case.

8. How is benzene obtained commercially? How would you prepare from it (a) aniline, (b) toluene?

9. An organic compound containing oxygen gave on analysis the following percentages—carbon 40.0; hydrogen 6.67.

Determine the empirical formula of the substance. Give structural formulæ for three compounds which would conform with the above results.