

Organic Chemistry.
Miss Worthington.

1. Write equations showing how you would prepare the following substances using alcohol as the sole source of organic material: mercaptan, chloroform, ethyl acetate, succinic acid, propionic acid, acetylene, dimethyl acetylene, ethyl acetylene, diethyl carbimol.
2. Prove that the structure of acids is represented by the general formula RCO_2H , and write reactions illustrating all the important modes of reactions of fatty acids and of their salts.
3. What is the primary reaction between ~~and~~ a ketone and hydroxylamine - give evidence for your statement.
4. What is Fehling's solution? Discuss its use for the quantitative determination of glucose.
5. What is nitroglycerine? How would you prepare it - from ~~acetylene~~ and glycerine and any inorganic reagents? How would you prepare glycerine from propyl alcohol?
6. What are quaternary ammonium bases? How do they resemble and how differ from ammonium hydroxide?
7. What conclusions may be drawn from the relation between ammonium hydroxide and quaternary ammonium compounds?
7. How would you transform d. tartaric acid ~~and~~ ^{into} racemic acid. What general methods are available for separating racemic substances into their active components?
8. Define and illustrate asymmetric synthesis and explain its significance (over)

9. Give structure of monosaccharides, with proof.
Indicate synthesis of D-fructose giving reason
for each step.

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Embryology

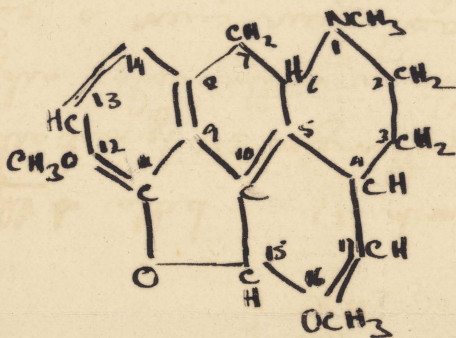
Collegiate Examination

May 25, 1910

Time 1 1/4 hours.

1. Describe as fully as possible, the development of the external form of the chick embryo.
2. Give a comparative account of the process of gastrulation in vertebrates.
3. What are the embryonic membranes of the chick? How are these membranes modified and what new structures make their appearance during the development of mammalian embryos?

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right to call it :- 1,16 dimethyl 11-15 an-
 hydro dioxyl -12 oxymethyl - 2,3,6,7, tetra
 hydro phenanthroquinoline. Prob-
 ably a new ring has been made
 of which I do not know the
 name. Gary Whiteall Ballington.

BRYN MAWR COLLEGE COLLEGIATE EXAMINATION

Minor English - Nineteenth Century Critics

Semester II. 2 hours.

Saturday May 28, 1910.

- I. Give the names and dates of Matthew Arnold's principal works, and show that there is a natural progression in his subjects.
- II. Describe Arnold's ideal critic, and show wherein Arnold's conception of criticism agrees with and differs from the theories and practice of predecessors and contemporaries.
- III. Write a few paragraphs on the theme: A certain worldliness of manner furthers the teaching of a sage and is part of his wisdom.

* Physiol. Chem. 26. v. 1911

1. What are albuminoids in the sense used in modern classifications?
2. What do you know about pentoses?
3. What are diets, i.e. "standard" diets? What must be considered in making tables of this character? Value of them.
4. ~~6.~~ Why may we have our doubts as to the comparability of "pepsins" and other commercial digestive preparations with the actual secretions of the body?
5. How may the more important products of digestion with pepsin be demonstrated or separated?
6. How do you detect HCl in small amounts?
7. Mett's tubes and their uses.

* Answer 3 or 4 of these questions

Theoretical Biology. References.

(1)

I. Biology - science of living things; Morphogenesis;
Structural Basis of Protoplasm; Cell Division.
✓ Wilson - "The Cell" (2nd edition).
pages 1-14, 17-23, 65-72.

II Parthenogenesis.

✓ Loeb - Amer. Jour. Physiol. Vol. III, 1900, pp. 434-471.

✓ " - " " " " Vol. IV, 1900, pp. 178-184.

• " - "General Physiology" Pt. II. Chaps. XXVI, XXIX, XXX,

Wilson - Cytological Study of Art. Parth in Sea-

Urchin Eggs. Archiv für Entwicklungsmechanik
der Organismen (Roux's Archiv) Vol. XII. pp. 529

Tennant & Hogue - Studies on the Development of the
Starfish Egg. Jour. Exp. Zool. Vol. III pp. 517-588.

III Evolution and Epigenesis.

✓ Wilson - "The Cell". Chap. IX.

Morgan - "The Development of the Frog Egg."

Chapters 7, 8, 9, 11, 12.

Hertwig, Q. - Archiv Mic. Anat. Vol. 42. Plates 39-44.

✓ Weismann - "The Germ Plasm". Introduction.

Brooks, - "William Harvey as an Embryologist."

IV. Cleavage. Determinate - Indeterminate.

Radial, Spiral, Bilateral etc.

1. Radial - Cleavage of Echinoderm Egg etc.

2. Spiral - Cleavage of Annelid and Mollusc Eggs etc.

3. Bilateral - Cleavage of Ascidian egg etc.

- (2).
- Conklin - Embryology of *Crepidula*. *J. Morph.* XIII. (1897) Figs.
- Wilson - Experimental studies on Germinal Localization
Jour. Exp. Zool. Vol. 1. 1904.
- Conklin, Mosaic Dev. *Ascidian Egg*. *Jour. Exp. Zool.* II, 1905.

V. Influence of External Conditions.

- ↓ Loeb - "Dynamics of Living Matter" pp. 106-116. Mary's notes
- Morgan - "Experimental Zoology". Chaps. I, II, XVI.
- Bütschli - "Protoplasm". Experiments.
- Vernon - *Phil. Trans. Royal Soc.* B 1898.
- Terrant - "The Dominance of Maternal or of Paternal Characters in *Echinoderm Hybrids*".

VI. Regulation.

- ↓ Child - *Jour. Exp. Zool.* Vol. III pp. 559-580.
- Erulick's Side Chain Theory. *Nipier & Ritchie* p. 490

VII Regeneration.

- Morgan - "Regeneration" Chaps. XIII - XIV. ✓

VIII Tropism.

- Loeb - "Dynamics of Living Matter" pp. 117-160.
- " - "General Physiology" Pt 1. Chaps. I, II, V. Mary's notes -
- Pt 2. Chap. XVIII

IX Behavior.

- rad. Jennings "Behavior of Lower Organisms" Chapters XVI - XIX.