1a) D-mannaric acid

1b) D-xyloonic acid

1c) L-threitol

1d) D-ribofuranose

1e) L-talose

1f) D-galactos pyranose

Lab Quiz #2
- OCC
- Boc
- Merrifield
- Phthalimidomalonic
- Strecker

2) D-galactos pyranose

planar

can be attacked on either side
3) Stereochemistry lost.

D-glucose

D-mannose

4) Acetal ⇌ hemiacetal

CH₃-O-S-OCH₃

1) A₂O

2) H₂O, H⁺

Was part of ring, or not methylated.
Exam #3

1) NaCN
2) H₂, Lindlar's
3) H⁺, H₂O

O Sazone

2) H₃N⁺

Zwitterionic

double cationic

3) pI_alanine = 6.02
pI_lysine = 9.87
pH = 4.20

Lys Al₉
4) 

5) Phenyl isothiocyanate

former amino acid
Lipids - naturally occurring fat-soluble molecules
hydrophilic/phobic - "water-loving/fearing"
lipophilic/phobic - "fat-fearing/loving"

Fatty acids

**Saturated**

- (12) lauric
- (14) myristic
- (16) palmitic
- (18) stearic
- (20) arachidic

**Unsaturated**

- (18) oleic

**Essential fatty acids**

- Linoleic acid (ω-6)
- Linolenic acid (ω-3)

Butyric acid
Waxes - Example: beeswax

Waxes are very non-polar but are able to form solids due to extensive formation of temporary dipoles (dispersion forces).

Fats

Triacylglycerols

\[ \text{OH} \quad 3 \text{R} \quad \text{OH} \]

Glycerol

Fat = Solid @ RT

Oil = Liquid @ RT

Phospholipids

Oxidation of lipid + \( \text{HO-PO}_4^-\text{OH} \)

Choline

Combine

Phospholipid phosphatidic acid

a phosphatidylcholine (general)

a lecithin (more general)
phospholipid bilayer

membranes

H₂O

Sphingosine

Choline

Phosphate

Sphingomyelin

Terpenes tail

Head

Isoprene

Mono terpene (2 isoprenes)

α-Farnesene (3 isoprenes)
Zingiberene (ginger) sesquiterpene

Geraniol (geranium) terpenoid

Menthol (peppermint)

Farnesyl pyrophosphate
tail-tail

Squalene - triterpene

Lanosterol

14 steps

Cholesterol