

Bago University
Department of Chemistry
Second Semester Examination, September 2019

Second Year BSc
(Chemistry Specialization)
Answer (any six) Questions

Chem 2108
Organic Chemistry II
Time Allowed: (3) hours

1. (a) Fill in the blanks with the correct word(s), unit(s), and etc., as necessary.
- (i) Pyrrole is an aromatic _____ with six pi electrons.
 - (ii) Alkaloids are _____ compounds widely distributed in different plant groups.
 - (iii) Torsional strain is due to electron- electron repulsions in _____ bonds.
 - (iv) Teflon is also known as _____.
 - (v) Two or more different monomers are used to form a polymer. The resulting product is called a _____.
 - (vi) Sucrose is not a _____ sugar.
- (b) Select the correct statement(s), word(s), unit(s) and etc., given in the followings.
- (i) L-Ascorbic acid is also known as vitamin (A, B, C).
 - (ii) The heteroatom present in furan is (oxygen, sulphur, nitrogen) atom.
 - (iii) Cyclohexane rapidly interconverts between (one, three, two) stable chair conformations.
 - (iv) The chair conformer with the methyl substituent in an (equatorial, axial, up) position is the more stable conformer.
 - (v) Plants contain chiefly (cellulose, proteins, carbohydrates) and lignins.
 - (vi) (Sugar, Starch, Sucrose) is the major component of flour, potatoes, rice, beans, corn, and peas.
 - (vii) D-Glucose is one of the most common (aldopentoses, ketohexoses, aldohexoses).
2. (a) (i) How do you understand "isomerism"? Classify the types of isomerism.
(ii) Draw all the staggered and eclipsed conformers that result from rotation about C2 - C3 bond of butane.
- (b) Draw the structure of cyclohexane for the following:
- (i) Chair conformer and its Newman projection
 - (ii) Boat conformer and its Newman projection
3. (a) Write a short note on each of the followings.
- (i) Ring flip (ii) 1-3 diaxial interaction.
- (b) Give the monomer formular and monomer name for each of the followings.
- (i) PVC (ii) Teflon (iii) Polyethylene (iv) Polypropylene
 - (v) Polystyrene (vi) Natural rubber (vii) Neoprene

P.T.O

4. (a) Illustrate the following reactions with equations.
(i) Doebner-Miller reaction
(ii) Reduction of pyridine
(iii) Friedlander synthesis
(b) Write a short account on each of the following alkaloids; (i) Nicotine and (ii) Caffeine.
5. (a) Write down the resonance structures of (i) pyrrole and (ii) furan.
(b) Give the structures and names of the principal products formed from the following reactions.
(i) Furan + H_2 , Ni, $50^\circ C$
(ii) Thiophene + conc. H_2SO_4 , cold
(iii) Pyrrole + $CHCl_3$, KOH
6. (a) How would you prepare the following polymers?
(i) Neoprene (ii) Kodel
(b) Discuss about the stereochemistry of polymerization by Ziegler-natta catalysts.
7. (a) Classify the following monosaccharides according to the functional group present in them and give the structure for each monosaccharide.
(i) D-Arabinose (ii) D-Fructose (iii) D-Glucose
(b) Draw the structures of α -D-glucose and β -D-glucose in (i) Fischer projection (ii) Haworth projection and (iii) Chair form.
