



Reg. No.

| | | | | | | | | |
|--|--|---|--|--|--|--|--|--|
| | | - | | | | | | |
|--|--|---|--|--|--|--|--|--|

The Open University of Sri Lanka

B. Sc. Degree Programme - 2014/2015

Faculty of Natural Sciences

Department of Chemistry

CMU3124 -Chemistry of Biomolecules

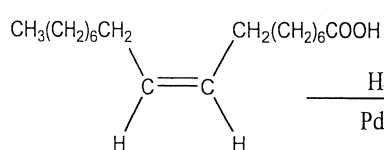
CONTINUOUS ASSESSMENT TEST II

| Ques No. | Marks |
|----------|-------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| Total | |

Date: Saturday, 22nd August 2015

Time: 2.30 p.m.– 3.30 p. m.

1. (i) Give the products that you could expect if the Oleic acid $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ (*cis*) is partially hydrogenated.



| |
|--|
| |
|--|

+

| |
|--|
| |
|--|

+

| |
|--|
| |
|--|

+

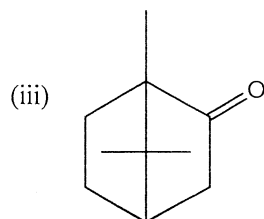
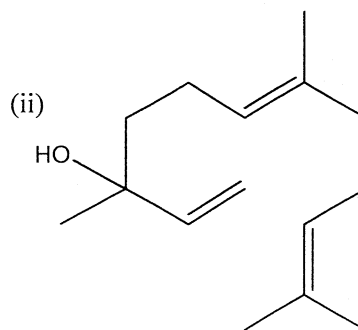
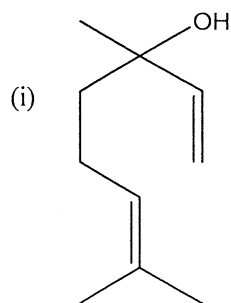
| |
|--|
| |
|--|

(25 Marks)

Reg. No.

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

2. a) Show the isoprene units in each of the following terpenoids using lines.



(15 Marks)

b) Give reasons to show why the following sex hormones are biologically active.

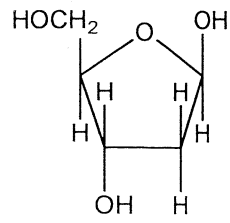
Androgens :

Estrogen :

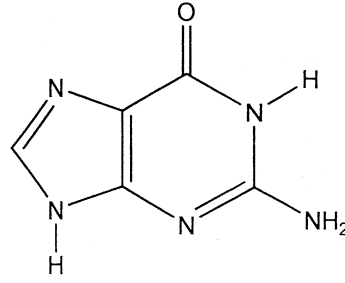
Progesterone :

(10 Marks)

3. a) (i) Draw the structure of nucleoside, formed from 2'-deoxyribose and guanine.



2'-Deoxyribose



Guanine

(10 Marks)

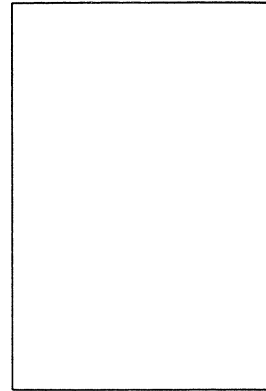
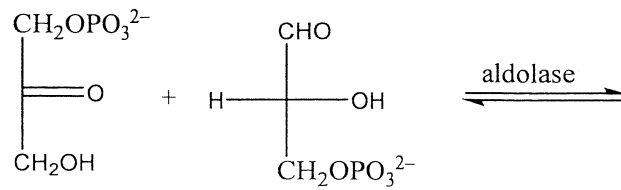
- (ii) Explain briefly the functions of DNA.

(10 Marks)

Reg. No.

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

4. Draw the structure of the product in the following reaction.



(10 Marks)

5. Explain what is meant by the following terms.

(i) Competitive inhibition

(ii) Prosthetic group

(20 Marks)



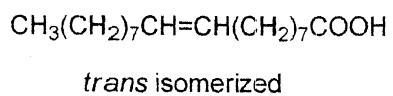
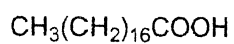
THE OPEN UNIVERSITY OF SRI LANKA

B.Sc Degree Programme 2014/2015

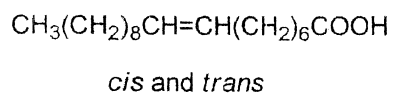
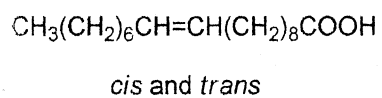
CMU 3124 – Chemistry of Biomolecules

Continuous Assessment Test II–Answer Guide

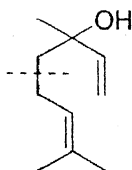
1. (i)



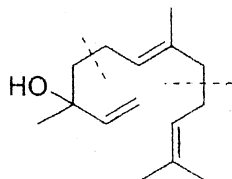
+



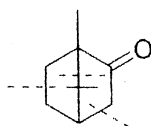
2. a) (i)



(ii)



(iii)

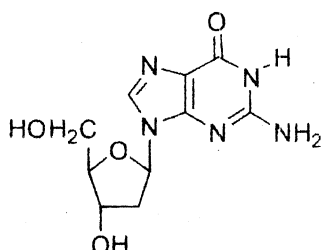


- b) Androgens : Responsible for the development of the male sex organ and secondary sex characteristics.

Estrogen : promote the development of secondary female characteristics, regulates the menstrual cycle, reproduction process, stimulate the development of the mammary glands during pregnancy.

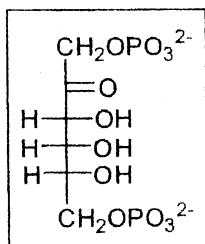
Progesterone : Suppress ovulation at certain stages of the menstrual cycle and during pregnancy prepare the lining of the uterus for implantation of the fertilized ovum. Control lactation.

3. a) (i)



- (ii) The function of DNA is to carry genetic information from one generation to the next generation. This happens by reproduction of DNA during cell division.(replication – DNA reproduction)

4.



5. (i) The structure of the competitive inhibitor is similar to that of the substrate. It competes with the substrate for the active site and forms enzyme inhibitor complex which prevent the substrate binding to the active site. Therefore the catalytic action is prevented.

(ii) (Organic cofactor) Molecule which is firmly attached to the protein molecule (enzyme) by covalent bonds. They are regenerated during the course of the reaction.