



THE OPEN UNIVERSITY OF SRI LANKA
B.Sc DEGREE PROGRAMME 2006/2007
LEVEL 3 – CONTINUOUS ASSESSMENT TEST 1 (NBT)
CHU 1140 BIOPHYSICS AND BIOCHEMISTRY
TIME 1 ½ HOURS

Date : Saturday 12th August 2006

Time : 2.00-3.30 pm

INSTRUCTIONS

This paper consists of two parts

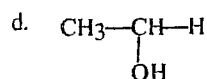
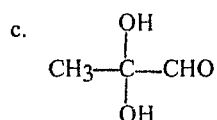
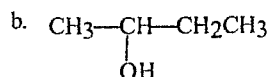
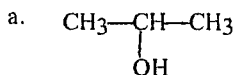
PART A: This consists 20 multiple choice questions (50 marks). Mark a cross in the box corresponding to the most suitable answer in the MCQ answer sheet.

PART B: This consists of 2 structured essay questions (50 marks). Write answers to all questions only in the space provided.

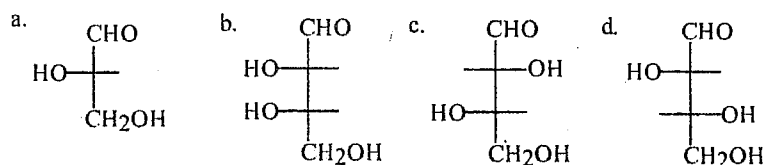
At the end of the examination, hand over the MCQ answer sheet and Part B with your answers.

PART A

1. Which of the following cannot be found in Prokaryotes.
a. cell wall b. cytoplasm c. nucleus d. ribosome
2. Both plant cells and animal cells contain
a. cell walls b. vacuoles c. a nucleus, mitochondria and chloroplasts
d. an endoplasmic reticulum and Golgi apparatus
3. Which of the following statements about mitochondria is not true.
a. each mitochondrion is surrounded by three membranes
b. mitochondria have their own DNA
c. mitochondria are organelles present in all eukaryotes
d. mitochondria supply chemical energy to the cell
4. Which of the following compounds have an asymmetric carbon?



5. Which one of the following is a D- isomer?



6. Diastereomers

- a. are not mirror images of each other
- b. are not stereoisomers
- c. are mirror images of each other
- d. have identical chemical and physical properties

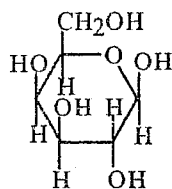
7. Glucose is an example of

- a. a ketopentose
- b. an aldotriose
- c. a ketotetrose
- d. an aldohexose

8. The total number of different stereoisomers of an aldopentose is

- a. 2
- b. 4
- c. 6
- d. 8

9. Name the following structure



- a. β -D-Galactopyranone
- b. α -D-Galactopyranose
- c. β -D-Glucopyranone
- d. α -D-Glucopyranose

10. A glycosidic bond is formed between,

- a. anomeric carbon of a sugar and a hydroxyl group of an organic molecule
- b. an amino acid and a sugar
- c. two sugar hydroxyl groups
- d. hydroxyl group of a sugar and an alcohol

11. D-galactose is a reducing sugar because,

- a. It exists mostly as a cyclic compound
- b. It has an aldehyde functional group which reacts with NaBH_4
- c. It has a hemi-acetal functional group which reacts with Tollen's reagent
- d. It is easily reduced

12. Phospholipids are

- a. esters of acetic acid
- b. esters formed with methanol
- c. esters of phosphoric acid
- d. esters of phosphomolibdic acid

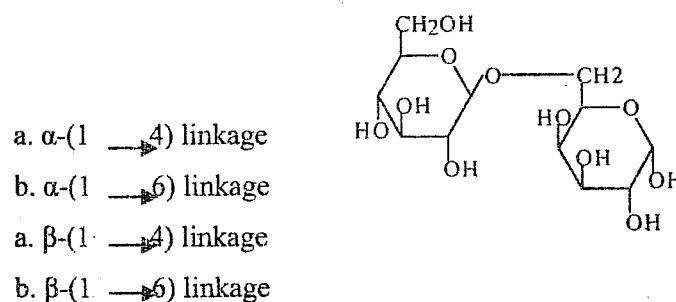
13. Hydrocarbon portion of a soap molecule is

- a. repelled by water
- b. attracted by polar solvents
- c. attracted by water
- d. repelled by non-polar solvents.

14. Bile acids are examples of

- a. steroids
- b. fatty acids
- c. prostaglandins
- d. hormones

15. The glycosidic linkage in the following disaccharide is a



16. The difference between DNA and RNA is in the

- a. phosphate group
- b. pyrimidine group
- c. purine group
- d. sugar unit

17. The element most abundantly found in living organisms is

- a. H
- b. C
- c. O
- d. N

18. Which of the following is not a steroid

- a. cholesterol
- b. vitamin A
- c. cholic acid
- d. cortisol

19. Enzymes are

- a. proteins that are found in milk and cheese
- b. proteins that catalyze biochemical reactions
- c. proteins that transport other molecules through the system
- d. proteins found only in yeast and other single celled organisms

20. What are the products formed when glycerol tripalmitate is boiled with aq. NaOH?

- a. glycerol and sodium palmitate
- b. glycerol and palmitic acid
- c. palmitic acid and sodium salt of glycerol
- d. water and sodium palmitate



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BIOPHYSICS & BIOCHEMISTRY Level 3 (L) - **CHU 1140/CHE 3140**

BIOCHEMISTRY
Assignment II Test

M.C.Q ANSWER SHEET : Mark a cross (x) over the most suitable answer.

Name:-

Reg. No.

FOR EXAMINERS USE ONLY

	Marks
Part A	
Part B	
Total %	

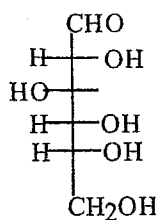
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Correct Answers

Marks

PART B

1. The Fischer projection of D-Glucose is given below



- a. Clearly draw the Haworth projection of α -D-glucopyranose

(05 marks)

- b. Number all carbon atoms in your figure drawn in part (a)

(02 marks)

- c. Indicate the anomeric carbon atom by drawing a star on it, in your figure in part (a)

(02 marks)

- d. What are "anomers"? Draw the two anomers of D-glucopyranose?

(04 marks)

- e. Clearly draw the Haworth projection of methyl- α -D-glucopyranoside

(05 marks)

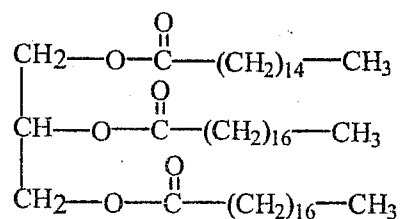
- f. Indicate the glycosidic bond by drawing an arrow pointing towards it in your figure drawn in part (d)

(02 marks)

- g. The hydroxyl group of carbon 1 in α -D-glucopyranose is linked by a glycosidic bond to carbon 4 of other another D-glucopyranose molecule. Draw the structure of the glycoside that is formed.

(05 marks)

2. Structure of a triglyceride is shown below.



- a. What are the products formed if you boil this with aqueous sodium hydroxide?

(10 marks)

- b. Define the term "micelles"

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(05 marks)

- c. Give a suitable diagram for a "micelle"

(05 marks)

d. How can soap remove dirt particles?

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(05 marks)