

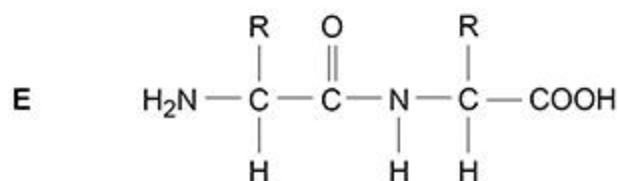
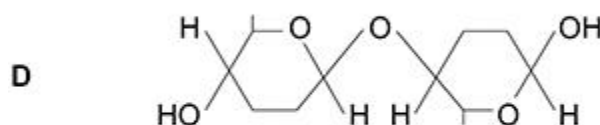
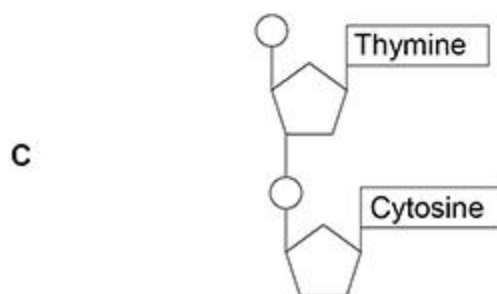
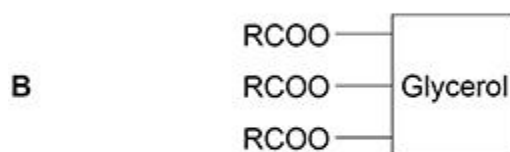
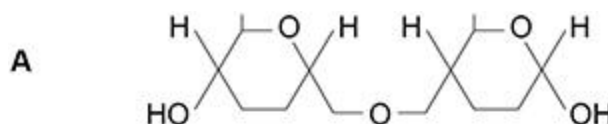
Name of the Student: _____

Max. Marks : 21 Marks

Time : 21 Minutes

Q1.

(a) The figure below shows the structure of some biological molecules.



Complete the table below by writing the correct letter, **A**, **B**, **C**, **D** or **E**, in the box next to each statement. Each letter may be used once, more than once, or not at all.

Letter	Statement
	is hydrolysed in the ileum and a product of this hydrolysis is found in micelles
	is formed by a condensation reaction between two α -glucose molecules
	is formed by the action of DNA polymerase
	gives a positive result in an emulsion test

(4)

(b) Describe the mechanism for the absorption of amino acids in the ileum.

(4)

(Total 8 marks)

Q2.

- (a) Give the **two** types of molecule from which a ribosome is made.

1 _____

2 _____

(2)

- (b) Complete the table to give **four** structural differences between a DNA molecule and an mRNA molecule.

	DNA structure	mRNA structure
1		
2		
3		
4		

(4)

(Total 6 marks)

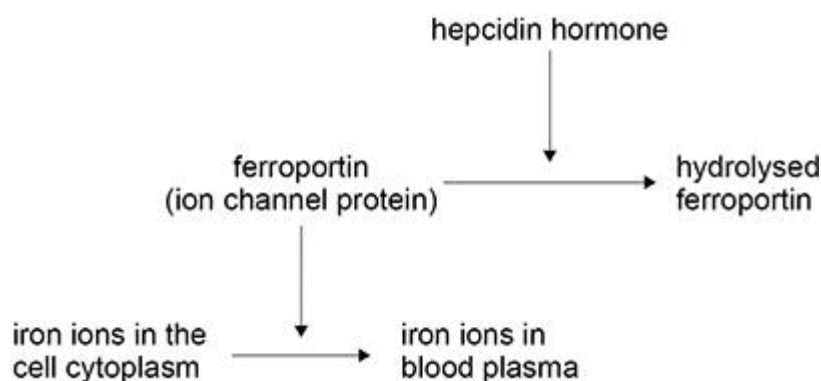
Q3.

- (a) Explain a property of iron ions that enables these ions to carry out their role in red blood cells.

(2)

- (b) The hormone hepcidin controls the iron ion concentration in blood plasma. Hepcidin affects ferroportin, the iron ion channel protein in cell-surface membranes.

The figure below shows how hepcidin controls the iron ion concentration in plasma.



People with the disease haemochromatosis do **not** produce hepcidin.

Use information in above figure to explain why the iron ion concentration is higher in the plasma of people with haemochromatosis.

(3)

- (c) The mass of iron ions in the plasma of a person with haemochromatosis is $6104 \mu\text{g}$ The iron ion concentration in the plasma of a healthy person is $50 \mu\text{g dm}^{-3}$ The volume of blood in each of these people is 4000 cm^3

Calculate the ratio of the mass of iron ions in the plasma of the person with haemochromatosis to the mass of iron ions in the plasma of the healthy person.

Answer _____ (2)
(Total 7 marks)