1ST SEM. 2020/21

UNIVERSITY OF ESWATINI

SPECIAL ASSESSMENT

PROGRAMME: B.Sc. AGED; B.Sc. AGRON; B.Sc. ASC; B.Sc. ASD; B.Sc. FSNT; B.Sc. HRT; B.Sc. TADM YEAR 2

COURSE CODE: ASC203

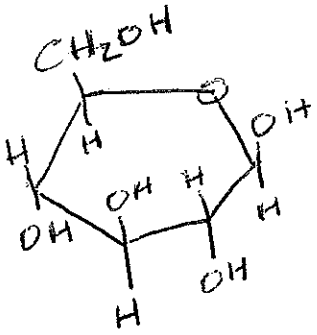
TITLE OF PAPER: BIOCHEMISTRY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTION 1 AND EITHER QUESTION 2 OR QUESTION 3.

THIS PAPER SHOULD NOT BE OPENED UNTIL THE CHIEF INVIGILATOR HAS GRANTED PERMISSION.

A



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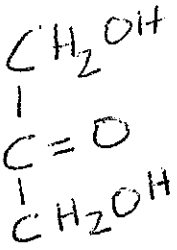

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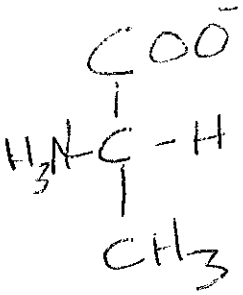

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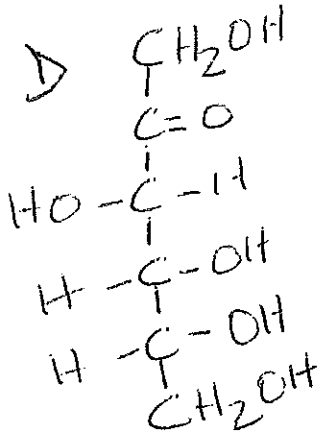

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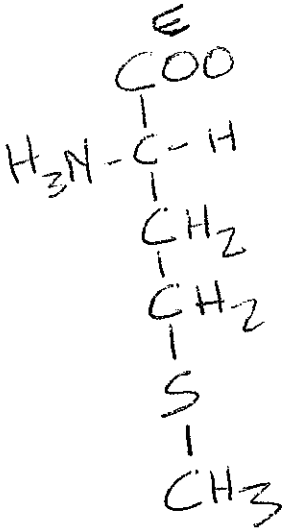

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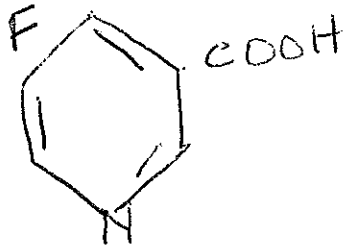

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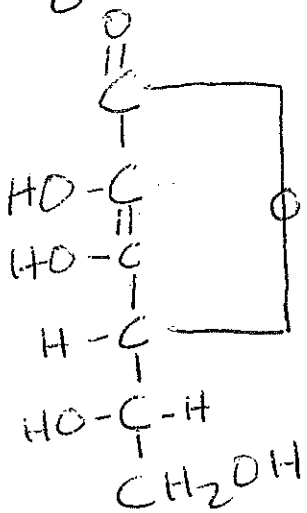

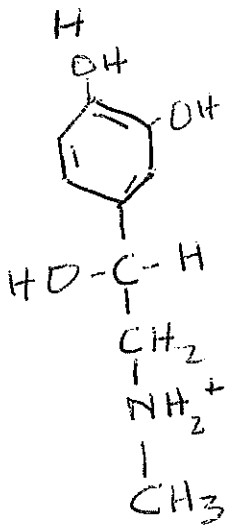

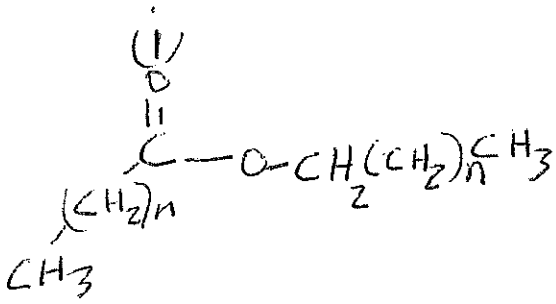

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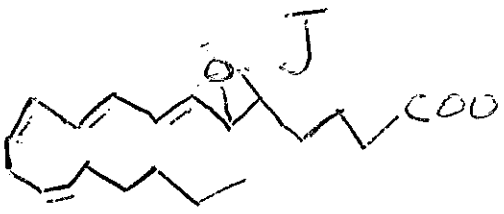

FIGURE 1

QUESTION 1

YOU MUST ANSWER THIS QUESTION (COMPULSORY)

A. Identify the biomolecules presented in Figure 1 (15 Marks)

B. Based on Figure 1, answer the following question (10 Marks)

   a. Which two structures are carbohydrates
   b. Which two structures are lipids
   c. Which two structures are amino acids
   d. Which two structures are vitamins
   e. Which two structures are Hormones

C. Using structures to illustrate your answers, explain the following (25 Marks)

   a. Hydrogen bonding in water
   b. Glycoside bonds of carbohydrates
   c. Peptide bonds of proteins
   d. Deoxy sugars
   e. Nucleotides

ANSWER QUESTION 2 OR QUESTION 3

QUESTION 2

A. Choose the best answer in each question. In your answer booklet, write the question number and your correct answer. Eg 1b; 2c; 3e (15 Marks)

1 The definition that 'carbohydrates are watered carbons' is not precise because....

   a. Carbohydrates do not have water their structure
   b. Some carbohydrates are polysaccharides
   c. Carbohydrates have a carbonyl group
   d. Some carbohydrates have Nitrogen in their structure
   e. Some carbohydrates are reducing sugars

2 How does a mule display attributes of non-living things
   a. Is a cross between a donkey and a horse
   b. It does not have a rumen
   c. It is reproductive devoid
   d. It is very hardy
   e. None of the above

3 Which of the following elements are found in all living things?
   a. Na; Mg; Zn
   b. N; Bo; Ca
   c. P; K; Se
   d. Su; Fe; Al
   e. C; Va; O

4 In the prokaryotic cell, where does glycolysis take place
   a. In the mitochondrion
   b. In the cytosol
   c. In the nucleus
   d. In the smooth endoplasmic reticulum
   e. In the mitochondrion and the cytosol

5 In the Eukaryotic cell, where does glycolysis take place
   a. In the mitochondrion
   b. In the cytosol
   c. In the nucleus
   d. In the rough endoplasmic reticulum
   e. In the mitochondrion and the cytosol

B. Define the following and give two examples in each case (25 Marks)
   1. Anabolism
   2. Fat soluble vitamins
   3. Nucleic acids
   4. Reducing sugars
   5. Iso electric point

OR

QUESTION 3

A. Choose the best answer in each question. In your answer booklet, write the question number and your correct answer. Eg 1b; 2c; 3e (15 Marks)

1. Which organelle is unlikely to be found in bacterial cell
    a. Ribosome
    b. Plasmid
    c. Mitochondrion
    d. Nucleoid
    e. None of these
2. Yeast cells differs from bacteria cells by
    a. Cell shape
    b. Having a nuclear membrane
    c. Not having a nuclear membrane
    d. Not having ribosomes
    e. Having ribosomes
3. Glycolysis; lipolysis; and the Citric acid cycle are all....
    a. Anabolic processes
    b. Catabolic processes
    c. Sugar degradative processes
    d. All the above processes
    e. None of these processes
4. Which of the following pair are not reducing sugars
    a. Sucrose and fructose
    b. Glucose and galactose
    c. Fructose and starch
    d. Sucrose and starch
    e. Cellobiose and lactose

5. Which nucleic acid is peculiar to viruses?
    a. Can have single stranded RNA
    b. Can have Double stranded RNA
    c. Can have double stranded DNA
    d. None of these
    e. All of these

B. Define the following and give two examples in each case (25 Marks)

1. Amino sugars
2. Saturated fatty acids
3. Eicosanoids
4. Monosaccharide tautomers
5. Essential amino acids