UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

BLG1501

October/November 2015

BASIC BIOLOGY

Duration 2 Hours

100 Marks

EXAMINERS
FIRST DR MA NYILA
SECOND MS LT MANKGA

Closed book examination

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This paper consists of FIVE (5) pages
ANSWER ALL THE QUESTIONS IN THE EXAMINATION ANSWER BOOK PROVIDED.

[TURN OVER]

QUESTION 1

Write only the correct letter next to the corresponding number in your answer book, for example 1 1 C

1 1 Chitin is an example of a

A polypeptide
B polysaccharide
C fat
D nucleic acid
E glycerol

1 2 The electron configuration $1s^2 2s^2 2p^6$ belongs to

A carbon
B oxygen
C nitrogen
D neon
E magnesium

1 3 Ribosomes are responsible for

A protein synthesis
B digestive compartments
C photosynthesis
D controlling the centre of the cell
E the removal of waste from the cell

1 4 The mass number refers to the

A number of protons in an atom
B combined number of protons and neutrons in an atom
C number of electrons in an atom
D combined number of protons and electrons in an atom
E number of neutrons and electrons in an atom

1 5 Which statement best describes the isotonic solution?

A It is a solution with a high solutes concentration and a low water concentration

B It is a solution with a high water concentration and a low solutes concentration

C It is a solution with a balanced water and solutes concentration

D It is a solution with a high water concentration and a low solutes concentration, thus it produces constant movement of water

E A and B are correct

1 6 A pH of 7 indicates that

A the solution consists of pure water

B the concentration of hydrogen ions equals that of the hydroxide ions in the solution

C there are no hydrogen ions in the solution

D there are no hydroxide ions in the solution

E A and B are correct

1 7 Cellulose is an example of a

A polypeptide

B lipid

C polysaccharide

D fat

E nucleic acid

1 8 In DNA, double helix, adenine pairs with _____ and guanine pairs with _____

A cytosine, thymine

B guanine, adenine

C uracil, cytosine

D thymine, cytosine

E cytosine, uracil

1 9 What is the basic unit of life?

A DNA

B cells

C organelles

D nuclei

E tissue

1 10 Which term/s is/are not part of the group?

A solute

B solvent

C evaporation

D solution

E A and C

10 X 2 =**[20]**

QUESTION 2

2 1 Define the following terms

2 1 1 Diploid

2 1 2 Enthalpy

2 1 3 Autotroph

2 1 4 Climax community

2 1 5 Ecotone

2 1 6 Primosome

2 1 7 Isomer

(2 x 7 = 14)

2 2 Compare the fate of pyruvate in alcohol fermentation and lactic acid fermentation in tabular format (6)

2 3 Give the name of the cell structure that has the following function (1 x 5 = 5)

2 3 1 It is the control centre of the cell

2 3 2 It encloses cellular contents and regulates movement of material in and out of the cell

2 3 3 It stores materials, waste and water, and maintains hydrostatic pressure

2 3 4 It is the site of lipid synthesis

2 3 5 It enables photosynthesis

[25]

QUESTION 3

3 1 Distinguish between parasitism, mutualism and commensalism (6)

3 2 Explain how enzyme activity can be regulated or controlled by environmental factors, substrate concentration co-factors and enzyme inhibitors (15)

3 3 Distinguish between the following terms

3 3 1 Acid and base (3)

3 3 2 Kinetic and potential energy (3)

3 3 3 Phagocytosis and pinocytosis (3)

(3 x 3 =9)

[30]

QUESTION 4

4 1 In sesame plants, the one-pod condition (P) is dominant to the three-pod condition (p) Normal leaf (L) is dominant to wrinkled leaf (l) A homozygote in the one-pod condition with normal leaves is crossed with a homozygote in the three-pod condition with wrinkled leaves Use a Punnett square to predict the phenotypic and genotypic ratios of the F2 generation (20)

4 2 Name five features of living organisms (5)

[25]

TOTAL MARKS:100