

**BLG1501**

May/June 2018

**Basic Biology**

Duration 2 Hours

100 Marks

**EXAMINERS**

FIRST

SECOND

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Closed book examination.

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue.

This paper consists of **FOUR (4)** 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 An atom is defined as the smallest particle of .....
- A a compound that can take part in a chemical reaction
  - B an element that can take part in a chemical reaction
  - C a molecule that reacts with other molecules
  - D an isotope that takes part in a chemical reaction
  - E a compound that reacts with other compounds
- 1 2 The three domains of life are the .....
- A Eukarya, Fungi and Bacteria
  - B Eukarya, Archaea and Bacteria
  - C Eukarya, Fungi and Animalia
  - D Eukarya, Archaea and Fungi
  - E Eukarya, Bacteria and Animalia
- 1 3 Isotopes are .....
- A atoms of different elements that have the same number of neutrons, but differ in the number of protons
  - B atoms of the same element containing the same number of protons, but differing in the number of electrons
  - C atoms of the same element containing the same number of protons, but differing in the number of neutrons
  - D atoms of the same element containing the same number of electrons, but differing in the number of neutrons
  - E atoms of different elements that have the same number of neutrons, but differ in the number of electrons
- 1 4 The van der Waals interaction is a bond formed by .....
- A polar positively charged and polar negatively charged atoms
  - B polar positively charged and non-polar negatively charged atoms
  - C non-polar positively charged and non-polar negatively charged atoms
  - D positively charged and negatively charged atoms
  - E non-polar positively charged and negatively charged atoms

**[TURN OVER]**

- 1 5 Chitin is an example of a .....
- A polypeptide
  - B polysaccharide
  - C fat
  - D. nucleic acid
  - E glycerol
- 1 6 The electron configuration  $1s^22s^22p^4$  belongs to .....
- A carbon
  - B. oxygen
  - C nitrogen
  - D neon
  - E magnesium
- 1 7 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 8 The mass number refers to .....
- A. the number of protons in an atom
  - B the combined number of protons and neutrons in an atom
  - C the number of electrons in an atom
  - D the combined number of protons and electrons in an atom
  - E the number of neutrons and electrons in an atom
- 1 9 Chloroplasts are responsible for .....
- A the shipping and receiving centre
  - B digestive compartments
  - C photosynthesis
  - D controlling the centre of the cell
  - E protein synthesis

- 1 10 In DNA, in the double helix, adenine pairs with ..., and guanine pairs with ... ..
- A. cytosine, thymine
  - B. guanine, adenine
  - C uracil, cytosine
  - D. thymine, cytosine
  - E. cytosine, uracil.

10 X 2=[20]

**QUESTION 2**

- 2.1 Describe the structure and functions of four polysaccharides (8)
- 2 2 Define the term "buffer" In the definition, refer to suitable examples of a buffer and indicate its application in living systems (5)
- 2 3 Compare in tabular form the process of fermentation and cellular respiration (12)  
[25]

**QUESTION 3**

- 3.1 Explain how edges and corridors can strongly influence landscape biodiversity. (6)
- 3.2 Describe the structure and function of ribosomes (10)
- 3.3 List the four major threats to biodiversity and give an example of each (12)  
[28]

**QUESTION 4**

- 4 1 A purple flower with an unknown genotype is crossed with a white flower Determine the genotype of the purple flower if purple (P) is dominant and white (p) is recessive (20)
- 4 2 How is the accumulation of chlorofluorocarbons responsible for depleting the atmospheric zone? (7)  
[27]

**TOTAL MARKS: 100**