UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

BLG1502

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ANIMAL AND PLANT DIVERSITY

Duration 2 Hours

100 Marks

EXAMINERS
FIRST MR AR MUDAU
SECOND PROF SR MAGANO

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

Choose the correct answer for each of the following:

1.1 The correct sequence from the most to the least comprehensive of the taxonomic levels listed here, is

A family, phylum, class, kingdom, order, species, genus
B kingdom, phylum, class, order, family, genus, species
C kingdom, phylum, order, class, species, family, genus
D phylum, kingdom, order, class, species, family, genus
E phylum, family, class, order, kingdom, genus, species

1.2 Land plant no longer required water as a medium for reproduction with the evolution of

A fruits and roots
B flowers and leaves
C cell walls and rhizoids
D lignified stems
E seeds and pollen

1.3 The body is capable of catabolizing many substances as source of energy Which of the following would be used as an energy source only after the depletion of other sources?

A calcium phosphate in bone
B glycogen in muscle cells
C glucose in the blood
D protein in muscle cells
E fat in adipose tissue

1.4 Animals require certain amino acids in their diet An amino acid that is referred to as non-essential would be best described as one that

A is less important than an essential amino acid
B can be made by the animal's body from other substances
C is not used by the animal in biosynthesis
D must be ingested in the diet
E is not found in many proteins

1.5 Which sequence of blood flow can be observed in either a reptile or a mammal?

A pulmonary vein → left atrium → ventricle → pulmonary circuit
B left atrium → aorta → lungs → systemic circulation
C right atrium → pulmonary artery → left atrium → ventricle
D vena cava → right atrium → ventricle → pulmonary circuit
E right ventricle → pulmonary vein → pulmocutaneous circulation

16 In *Chlamydomonas*
A the adult is haploid
B the zygospore survives times of stress
C sexual reproduction occurs
D asexual reproduction occurs
E All of the above are correct

17 A cloaca is an anatomical structure found in many non-mammalian vertebrates, which functions as
A a source of nutrients for developing sperm in the testes
B a specialised sperm-transfer device produced by males
C a gland that secretes mucus to lubricate the vaginal opening
D a common exit for the digestive, excretory and reproductive systems
E a region bordered by the labia minora and clitoris in females

18 When air temperature exceeds their body temperature, jackrabbits living in hot, arid lands will
A bask in a sunny, exposed area
B dilate the blood vessels in their large ears
C constrict the blood vessels in their large ears
D increase movements to find a sunny area
E begin involuntary shivering of their skeletal muscles

19 To leave the digestive tract, a substance must cross a cell membrane During which stage of food processing does this take place?
A digestion
B elimination
C hydrolysis
D absorption
E ingestion

1 10 An example of a connective tissue is the
A nerves
B cuboidal epithelium
C skin
D blood
E smooth muscles

[20]

QUSETION 2

Give the correct scientific term for each of the descriptions below. Write only the number with the correct term next to it. Each number and its term should be on a separate line in your answer book.

2 1 A type of cell with a membrane-enclosed nucleus and membrane-enclosed organelles

2 2 The fluid outside the thylakoids

2 3 An organism that is capable of both heterotrophy and photosynthesis

2 4 The innermost layer of the cortex in plant roots, a cylinder one cell thick that forms the boundary between the cortex and the vascular cylinder

2 5 The use of living organisms to detoxify and restore polluted and degraded ecosystem

2 6 The ovule-producing reproductive organ of a flower, consisting of the stigma, style and ovary

2 7 A group of plant-like protists that is most closely related to plants

2 8 The creation of offspring by the fusion of haploid gametes to form a zygote that is diploid

2 9 The transfer of pollen from an anther to a stigma

2 10 The joint evolution of two interacting species, each in response to selection imposed by the other

[10]

QUESTION 3

List **FOUR** advantages and **FOUR** disadvantages of algae **[8]**

QUESTION 4

4 1 Compare parenchyma and collenchyma with regards to (10)

a) Structure and composition of the cell wall
b) Functions
c) Positions in plants

4 2 Name 5 differences between monocotyledonous and dicotyledonous plants Present your results in a table (5)

[15]

QUESTION 5

Distinguish between open and closed circulatory systems and give an example of an animal in which each occurs Also name the three basic components common to both systems **[9]**

QUESTION 6

6 1 Distinguish between regulators and conformers in terms of homeostasis (4)

6 2 Describe the process of conduction, convection, radiation and evaporation (8)

[12]

QUETSION 7

Describe what an apicomplexan is and, using an annotated drawing, explain the two-host life history of *Plasmodium*, which causes malaria **[15]**

QUESTION 8

Name the hormones of

8 1 the anterior pituitary gland (4)

8 2 gonads (3)

8 3 adrenal gland (4)

[11]

TOTAL: 100 marks

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