

BLG1502

May/June 2010

ANIMAL AND PLANT DIVERSITY

Duration 2 Hours

100 Marks

EXAMINERS :

FIRST

SECOND

MRS AJ KRUGER

DR B MATSILIZA-MLATHI

This paper consists of SIX pages

ANSWER ALL THE QUESTIONS

[TURN OVER]

QUESTION1

Choose the best answer for each of the following questions. Write only the number with the correct answer next to it. Each answer must be on a separate line in your answer book.
Example: 1 1 a

- 1 1 The gram stain is a procedure that microbiologists use to
- a determine if a bacterial strain is a pathogen
 - b determine if a bacterial sample can break down oil
 - c infer the structure of a bacterial cell wall and bacterial response to antibiotics
 - d count bacteria in medical or environmental samples
 - e all of the above
- 1 2. Which of the following characteristics of plants is absent in their closest relatives, the charophytes?
- a chlorophyll b
 - b cellulose in cell walls
 - c formation of cell plate during cytokinesis
 - d sexual reproduction
 - e alternation of generations
- 1 3 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, family, genus, species
 - d phylum, kingdom, order, class, species, family, genus
 - e phylum, family, class, order, kingdom, genus, species
- 1 4 Land plants 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

[TURN OVER]

- 1 5 Which of these is found in seed plants?
- a roots, stems and leaves
 - b complex vascular tissue
 - c pollen grains that are not flagellated
 - d retention of megasporophyte within the ovule
 - e All of these are correct
- 1 6 The body is capable of catabolizing many substances as sources 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 7 Animals require certain amino acids in their diet. An amino acid that is referred to as nonessential 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 8 Folic acid supplements have become especially important for pregnant women. Why?
- a Folic acid deprivation is a cause of heart abnormalities in a newborn
 - b The folic acid stored by pregnant women is removed from their circulation
 - c Folic acid supplies vitamins that pregnant women lose
 - d Folic acid deprivation is associated with neural tube abnormalities in a fetus
 - e The fetus makes high levels of folic acid
- 1 9 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

[TURN OVER]

- 1 10. 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 ventricle → 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

10×2=[20]

QUESTION 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 with its term on a separate line in your answer book

- 2 1 An organism that is capable of both heterotrophy and photosynthesis
- 2 2 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 3 The use of living organisms to detoxify and restore polluted and degraded ecosystems
- 2 4 The ovule-producing reproductive organ of a flower, consisting of the stigma, style and ovary
- 2 5 A group of plant-like protists that is most closely related to plants

[5]

QUESTION 3

- 3 1 Describe the binomial system of classification (5)
- 3 2 Name the different hierarchical classification groupings (6)
- 3 3 Discuss the structure of the prokaryotic cell wall and explain how the structure could be of medicinal value (5)
- 3 4 Name the five characteristics that define land plants (5)

[21]

[TURN OVER]

QUESTION 4

Give a schematic and labelled representation of the life cycle of a moss
Include blocks of information to explain each stage

[14]**QUESTION 5**

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

[15]**QUESTION 6**

Name the hormones of

- | | | |
|-----|------------------------------|-----|
| 6 1 | the anterior pituitary gland | (6) |
| 6 2 | gonads | (3) |
| 6 3 | adrenal gland | (4) |
| 6 4 | pineal gland | (1) |
- [14]**

QUESTION 7

Give one or two words for the following

- 7 1 the creation of offspring by the fusion of haploid gametes to form a zygote that is diploid
- 7 2 the male gamete
- 7 3 asexual reproduction in which new individuals arise from outgrowths of existing ones
- 7 4 asexual reproduction in which the body breaks into several pieces, some or all of which develop into complete adults
- 7 5 the development of an egg without
- 7.6 an individual that has both male and female reproductive systems
- 7 7 chemical signals released by one organism that influence the physiology and/or behaviour of other individuals of the same species

[TURN OVER]

- 7.8 a sac in females of certain insects in which sperm may be stored for a year or more
- 7.9 a common opening to the outside for the digestive, excretory and reproductive systems
- 7.10 the largest semen-secreting gland

[10]

QUESTION 8

Give scientific name of the human being

[1]

TOTAL: 100 marks