

BLG1502

May/June 2017

ANIMAL AND PLANT DIVERSITY

Duration 2 Hours

100 Marks

EXAMINERS

FIRST

MR AR MUDAU

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

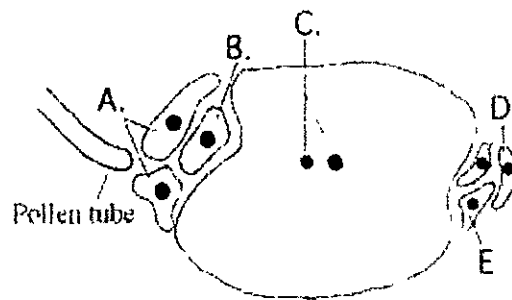
Choose the correct answer for each of the following:

- 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

[TURN OVER]

- 1 6 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
- 1 7 A cloaca is an anatomical structure found in many non-mammalian vertebrates, which function 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

The following questions (1 8 – 1 10) refer to the diagram below of an embryo sac of an angiosperm.



- 1 8 Which cell, after fertilisation, gives rise to the embryo plant?
- A A
 - B B
 - C C
 - D D
 - E E
- 1 9 Which cell becomes the triploid endosperm?
- A A
 - B B
 - C C
 - D D
 - E E

1 10 Which cell guides the pollen tube to the egg cell?

- A A
- B. B
- C C
- D D
- E E

[10x1 = 10]

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 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 A long cellular protuberance that delivers sperm to the female gametophyte
- 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

[10x1 = 10]

[TURN OVER]

QUESTION 3**Name the hormones of:**

- 3 1 anterior pituitary gland (6)
 3 2 posterior pituitary gland (2)
 3 3 adrenal glands (4)
 [12]

QUESTION 4

- 4 1 Describe the binomial system of classification (6)
 4 2 Name the FIVE characteristics that define land plants (5)
 4 3 Are the following scientific names correct? Give reasons
 I Acacia aerioloba
 II Panthera pardus
 III Ophisaurus ventralis
 IV Macaca fascicularis
 V Plasmodium vivax
 (5x2 = 10)
 [21]

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

Discuss the economic importance of yeast which belongs to the kingdom Fungi. [10]

QUESTION 7

- 7 1 Distinguish between regulators and conformers in terms of homeostasis (4)
 7 2 Describe the process of conduction, convection, radiation and evaporation (8)
 7.3 Discuss the two groups of the defence mechanisms of the body against foreign or harmful agents (10)
 [22]

TOTAL: 100 marks