

BLG1502

May/June 2015

ANIMAL AND PLANT DIVERSITY

Duration 2 Hours

100 Marks

EXAMINERS ·
FIRST
SECOND

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MS LT MANKGA

Closed book examination

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This paper consists of FOUR (4) 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 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 3 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
- 1 4 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 5 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

[5×2=10]

[TURN OVER]

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

[10]**QUESTION 3**

Name the hormones of:

- 3.1 anterior pituitary gland (6)
- 3.2 posterior pituitary gland (2)
- 3.3 adrenal glands (4)

[12]**[TURN OVER]**

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 the five characteristics that define land plants (5)
- [15]

QUESTION 5

Distinguish between abiotic and biotic pollinating agents and give two examples of each. [10]

QUESTION 6

Describe what an apicomplexan is and, using an annotated drawing, explain the two-host life history of *Plasmodium*, which causes malaria. [13]

QUESTION 7

- 7.1 Describe how the carbon dioxide is picked up at the tissues and deposited in the lungs. (6)
- 7 2 Distinguish between regulators and conformers in terms of homeostasis (4)
- 7 3 Describe the process of conduction, convection, radiation and evaporation. (8)
- [18]

QUESTION 8

Write explanatory notes on the structure and functions of the following

- a Dermal tissues
 - b Vascular tissues
 - c Ground tissues
- [12]

TOTAL: 100 marks