

BLG1502

October/November 2011

ANIMAL AND PLANT DIVERSITY

Duration : 2 Hours

100 Marks

EXAMINERS :
FIRST
SECOND

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This examination paper consists of 7 pages

ANSWER ALL QUESTIONS

[TURN OVER]

QUESTION 1

Choose the correct answer for each of the following questions. Write only the number of the question with the correct option (the letter a, b, c, d or e) 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 up
 - 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

[TURN OVER]

- 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.
- 1 5 Which feature(s) do ferns share with all other land plants?
- a Sporophyte and gametophyte life cycle stages
 - b Gametophytes supported by a thallus
 - c Dispersal of spores from a sorus
 - d Asexual reproduction by way of gemmae
 - e Water uptake by means of rhizoids

- 1 6 When air temperature exceeds their body temperature, jackrabbits living in hot, and 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
- 1 7 An advantage of asexual reproduction is that
- a asexual reproduction produces offspring that respond effectively to new pathogens
 - b asexual reproduction enhances genetic variability in the species
 - c asexual reproduction allows the species to endure long periods of unstable environmental conditions
 - d asexual reproduction enables the species to rapidly colonize habitats that are favorable to that species
 - e asexual reproduction allows a species to readily rid itself of harmful mutations
- 1 8 A cloaca is an anatomical structure found in many nonmammalian vertebrates, which functions as
- a a source of nutrients for developing sperm in the testes
 - b a specialized 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

1.9 An example of a connective tissue is the .

- a nerves.
- b cuboidal epithelium.
- c skin
- d blood.
- e smooth muscles

1.10 Connective tissues have .

- a a supporting material such as chondroitin sulfate.
- b many densely-packed cells without an extracellular matrix.
- c the ability to transmit electrochemical impulses.
- d relatively few cells and a large amount of extracellular matrix
- e an epithelial origin

10×2=[20]

QUESTION 2

2.1 By means of a labelled diagram, describe the life cycle of a pine

Use blocks of information to explain each stage (15)

2.2 Explain the process of double fertilisation that occurs in angiosperms. (5)

[20]

QUESTION 3

Write a brief report on the ecological importance of fungi. Use headings and subheadings in your report (10)

[TURN OVER]

QUESTION 4

Environmental adaptations may result in roots being modified for a variety of functions. Name at least five different types of modified roots and their functions **(10)**

QUESTION 5

Define and give an example of an animal in each case

5.1 Radial symmetry

5.2 Bilateral symmetry **[6]**

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 **(1)**

7.2 The male gamete. **(1)**

7.3 Asexual reproduction in which new individuals arise from outgrowths of existing ones **(1)**

[TURN OVER]

- 7.4 Asexual reproduction in which the body breaks into several pieces, some or all of which develop into complete adults (1)
- 7.5 The iron-containing protein that transports oxygen in blood (1)

[5]

QUESTION 8

Give the scientific name of the human being.

[1]

QUESTION 9

Give the function of the following:

- 9.1 Proximal tubule (1)
- 9.2 Descending limb of the loop of Henlé (1)
- 9.3 Ascending limb of the loop of Henlé (1)
- 9.4 Distal tubule (1)
- 9.5 Collecting duct (1)

[5]

QUESTION 10

Describe the format of a scientific name and state why biologists use scientific names

[4]

QUESTION 11

Distinguish between antigens and antibodies

[5]

TOTAAL: 100