

BOT1502

October/November 2017

PLANT BIODIVERSITY AND ENVIRONMENTAL BOTANY

Duration 2 Hours

100 Marks

EXAMINERS

FIRST

SECOND

MS LT MANKGA

MR AR MUDAU

Closed book examination

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

This paper consists of FOUR (4) pages.

ANSWER ALL THE QUESTIONS IN THE EXAMINATION ANSWER BOOK PROVIDED.

[TURN OVER]

QUESTION1

WRITE ONLY THE CORRECT LETTER NEXT TO THE CORRESPONDING NUMBER IN YOUR ANSWER BOOK, FOR EXAMPLE 1.1 C

- 1 1 Plate tectonics ultimately helps to explain
- A the creation of mountains and volcanoes
 - B continental drift
 - C changes in the ocean floor
 - D Both A and B are correct
 - E A, B and C are correct
- 1 2 In _____, the selecting agent is the environment, whereas in _____, the selecting agent is humans
- A natural selection, convergent evolution
 - B mutation, artificial selection
 - C homoplasy, homology
 - D artificial selection; natural selection
 - E natural selection; artificial selection
- 1 3 Co-evolution is illustrated by
- A grasses and grazing animals
 - B flowering plants and insect pollinators
 - C flowering plants and herbivores
 - D Both B and C are correct
 - E All of the above are correct
- 1 4 In the scientific name *Capsicum annum*, *Capsicum* is the _____ and *annum* the _____
- A class, order
 - B genus, species epithet
 - C kingdom, phylum
 - D family, genus
 - E None of the above
- 1 5 The use of prokaryotes to clean up ecologically contaminated areas, such as sites of oil spills, is known as
- A rehabilitation
 - B bioremediation
 - C recycling
 - D extraction
 - E None of the above

- 1 6 Dioecious plants produce
- A carpellate and staminate flowers on separate plants
 - B carpellate and staminate flowers on the same plant
 - C bisexual flowers
 - D both bisexual and unisexual flowers on the same plant
 - E no flowers
- 1 7 The endosperm
- A is produced by double fertilisation
 - B provides nourishment for the embryo
 - C arises from a triploid nucleus in most angiosperms
 - D Both B and C are correct
 - E A, B and C are correct
- 1 8 Enations are
- A a type of sporangium
 - B specialised buds produced along the stems of horsetails
 - C the sporangia-bearing branches of rhinophytes
 - D immature fern leaves
 - E tiny leaf-like structures on the stems of *Psilotum*
- 1 9 Groups of sporangia on fertile leaves are called
- A pinnae
 - B fronds
 - C fiddleheads
 - D indusial
 - E sori
- 1 10 The world's tallest plants are members of which group?
- A Ginkophyta
 - B Gnetophyta
 - C Cycadophyta
 - D Coniferophyta
 - E Ginkophyta and Gnetophyta

10 × 2 = [20]

[TURN OVER]

QUESTION 2

- 2 1 Explain BRIEFLY the following
- 2 1 1 Endosymbiont theory (6)
- 2 1 2 Alteration of generations in plants (5)
- 2 1 3 Natural selection (6)
- 2 2 Briefly explain the difference between the following
- 2 2 1 r- and K- type of population (6)
- 2 2 2 primary and secondary succession (5)
- 2 2 3 tolerance and limiting factors (4)
- [32]**

QUESTION 3

- 3 1 List FOUR (4) advantages and FOUR (4) disadvantages of algae (8)
- 3 2 What is biodiversity hotspot? (3)
- 3 3 Name the three biodiversity hotspots of global importance in South Africa and briefly discuss each one of them (12)
- [23]**

QUESTION 4

- 4 1 By means of a labelled diagram, describe the life cycle of a pine Use blocks of information to explain each stage (15)
- 4 2 Describe the type of reproduction that *Spirogyra* undergoes (10)
- [25]**

TOTAL: 100 marks