Excluding examiner comments

R3101

PLANT TAXONOMY, STRUCTURE & FUNCTION

Level 3

Wednesday 7 February 2024

09:00 – 10:40

Written Examination

Candidate Number: .....

Candidate Name: .....

Centre Name: .....

IMPORTANT – Please read carefully before commencing:

i) The duration of this paper is **100** minutes;

ii) **ALL** questions should be attempted;

iii) **EACH** question carries **10 marks**;

iv) Write your answers legibly in the spaces provided. It is **NOT** necessary that all lined space is used in answering the questions;

v) Use **METRIC** measurements only;

vi) Use black or blue ink only. Pencil may be used for drawing purposes only. Ensure that all diagrams are labelled accurately with the line touching the named object;

vii) Where plant names are required, they should include genus, species and where appropriate, cultivar;

viii) Where a question requires a specific number of answers; only the first answers given that meet the question requirement will be accepted, regardless of the number of answers offered;

ix) Please note, when the word 'distinct' is used within a question, it means that the items have different characteristics or features.

Ofqual Unit Code M/505/2966

ANSWER ALL QUESTIONS

MARKS

Q1 a) Name the main group in the Plant Kingdom to which mosses belong. **1**

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b) State **THREE** environmental conditions in which mosses thrive. **3**

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Please see over/…..

MARKS

c) Describe how **THREE** characteristics of mosses limit their growth to the conditions stated in b). **6**

Total Mark

Please turn over/….

MARKS

Q2 Describe how flowers are adapted for pollination in a **NAMED** plant by:

i) wind **5**
ii) flies **5**

i.....

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Please see over/…..

MARKS

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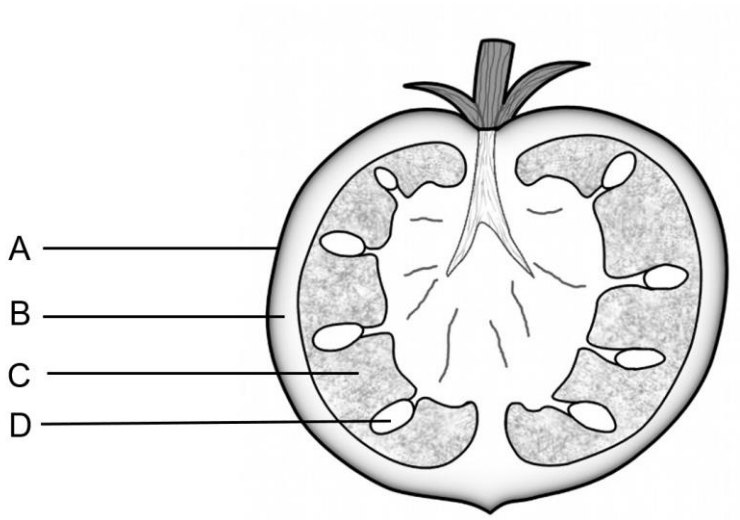
Total Mark

Please turn over/…..

MARKS

Q3 a) Name the type of true fruit in the diagram below and give a **NAMED** plant example.



Name of fruit:

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1

Plant example:

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1

b) Name the features labelled A – D in the diagram in a). **4**

A……

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B……

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C……

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D……

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Please see over/…..

		MARKS
c)	Using a **NAMED** plant example of a false fruit describe the difference between this and a true fruit.	**4**

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Total Mark

Please turn over/…..

MARKS

Q4 a) State **THREE** environmental conditions that favour guttation. **3**

b) Explain the mechanism of water movement in guttation. **5**

Please see over/…..

MARKS

c) State **TWO** possible functions of guttation. **2**

Total Mark

Please turn over/….

MARKS

Q5 Describe the role of the epidermis of a leaf under the following headings:

i) control of water loss of a leaf **5**
ii) enabling optimum photosynthesis of a leaf **5**

i)..

Please see over/…..

MARKS

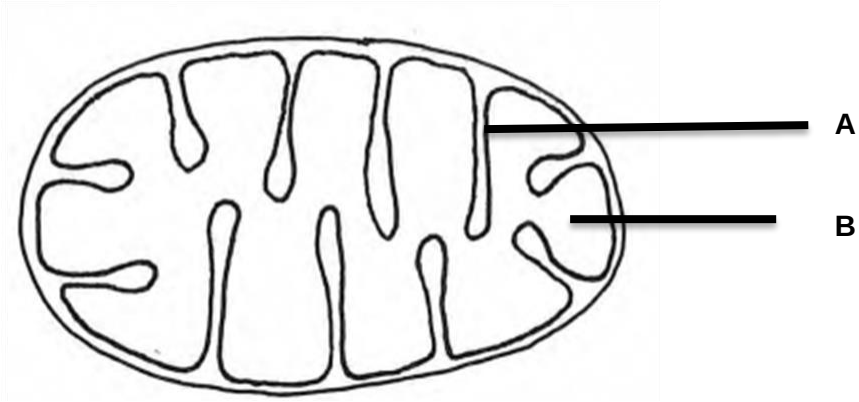
ii)

Please turn over/…..

Total Mark

MARKS

Q6 a) Identify the features labelled A and B on the diagram of a mitochondrion below: **2**



A……

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B……

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b) Outline the stages of aerobic respiration which take place in the: **2 4**

i) cell cytoplasm
ii) mitochondrion

i)……

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MARKS

ii) .....

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c) State **ONE** benefit and **ONE** disadvantage of anaerobic respiration. **2**

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Total Mark

Please turn over/…..

MARKS

Q7 a) Describe **TWO** properties and **TWO** effects of the named plant growth regulators by completing the table below:

Plant growth regulator	**Abscisic acid**	**Ethene (ethylene)**	
Properties	**1.** **2.**	**1.** **2.**	**2** **2**
Effects	**1.** **2.**	**1.** **2.**	**2** **2**

Please see over/…..

		MARKS
b)	State the difference between a growth retardant and a growth inhibitor in relation to plant growth regulators.	**2**

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Total Mark

Please turn over/…..

MARKS

Q8 a) Give a **NAMED** plant example for **EACH** of the following inflorescences:

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i) raceme
ii) spike
iii) umbel
iv) corymb

i)……

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ii)……

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iii)……

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iv)……

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Please see over/…..

MARKS

b) State **ONE** difference between:

i) a raceme and a spike **1**
ii) an umbel and a corymb **1**

i)……

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ii)……

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c) Name **TWO** other types of inflorescence giving a **NAMED** plant example for **EACH.** **4**

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Total Mark

Please turn over/…..

MARKS

Q9 a) State what is meant by the term 'tropism' **2**

b) Explain the mechanism of a root's response to gravity. **6**

Please see over/…..

MARKS

c) State the significance of this response in a geminating seed. **2**

Total Mark

Please turn over/…..

Q10 a) State the meaning of the following terms giving a **NAMED** example of **EACH** term: **MARKS**

i) family **2**
ii) species **2**

i)

ii)

Please see over/…..

		MARKS
b)	State the difference between cultivar names and trade designations (selling names) giving a **NAMED** plant example for **EACH.**	**6**

Total Mark

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