



# Education

KwaZulu-Natal Department of Education  
REPUBLIC OF SOUTH AFRICA

LIFE SCIENCES  
MEMORANDUM  
COMMON TEST  
SEPTEMBER 2016

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 10**

N.B. This memorandum consists of 4 pages.

## SECTION A

### QUESTION 1

- 1.1.1 B✓✓
- 1.1.2 D✓✓
- 1.1.3 B✓✓
- 1.1.4 C✓✓
- 1.1.5 A✓✓

(5 x 2) (10)

TOTAL SECTION A 10

## SECTION B

### QUESTION 2

2.1

- 2.1.1 - Monera✓  
- Protista✓  
- Fungi✓  
(Mark first TWO only)

Any (2)

2.1.2  $140 + 110 + 90 + 82 = 422$

$$\frac{82}{422} \times 100\%$$

19.4%✓

2.2

- 2.2.1 Percentage of different properties of soil samples✓✓ (3)
- 2.2.2 - Take many readings for each soil sample and work out the average✓ (5)
- Repeat the investigation✓ Any (2)

- 2.2.3 Has low water retention✓/high drainage (1)

2.2.4

Soil Y	Soil Z
High humus✓	Low humus✓
Good drainage✓	Poor drainage✓
Suitable amt of H <sub>2</sub> O retained	Excess amt of H <sub>2</sub> O retained
good H <sub>2</sub> O retention	Retention of H <sub>2</sub> O too much

(5)  
(10) [15]

QUESTION 3

3.1

- 3.1.1 High light ✓ and a temperature of 20°C ✓ (2)
- 3.1.2 - Light was a limiting factor ✓  
- decreasing the rate of photosynthesis ✓ (2)

3.1.3

- Soil ✓  
- Water ✓  
- Wind ✓  
- Altitude ✓  
- Aspect / slope ✓  
(Mark first TWO only) Any (2)
- Soil pH  
Juvénile conditions  
gases*

3.1.4

- High amount of heat ✓  
- Less water available in soil ✓ / dry soil ✓  
- Cuticles reduce water loss / conserve water ✓ Any (2)  
(8)

3.2

3.2.1 Organisms that occur in a particular area ✓ and nowhere else ✓ / only (2)

3.2.2 - Local communities ✓  
- Tourists ✓  
(Mark first TWO only) (2)

3.2.3 - Adapted to live in dry areas ✓  
- Has thick cuticle ✓  
- Can live in sandy soil ✓  
*dry dry summers / drier soil* (3)  
(7)

SECTION C

QUESTION 4

Water cycle → don't have to say increased.

- Increased heat energy from the sun ✓
- Causes evaporation of water ✓ / not water vapour ✓
- from ponds to the atmosphere ✓ of air ✓
- Plant roots absorb water from soil ✓
- Water from plants is lost by transpiration ✓
- through their leaves ✓
- Animals drink water ✓ from ponds
- They also lose water vapour through sweating ✓
- Air becomes saturated with water vapour ✓
- Air rises and cools ✓
- Water vapour condenses ✓
- It forms clouds ✓
- Clouds release water when it rains ✓ / precipitation ✓
- Rain in the ground runs off into the ponds again ✓

Effects of pesticides on food chain

- Pesticides pollute water ✓ / affect vegetables /
- It poisons aquatic animals ✓ / biotic components ✓
- Tadpoles may die ✓
- Leading to death of eels ✓
- Due to shortage of food ✓
- The eel population decreases ✓
- Birds may also die ✓
- due to increased competition for the limited eels ✓ / food
- Some birds migrate ✓ to look for food
- Bird population decreases ✓
- Pondweeds grow excessively ✓
- since they have no consumers ✓
- Disturbance of food chain occurs ✓

*not entire ecosystem*

Any (8)  
Content (17)  
Synthesis (3)  
[20]

*5/8*

*6/9*

ASSESSING THE PRESENTATION OF THE ESSAY

RELEVANCE	LOGICAL SEQUENCE	COMPREHENSIVE
All information provided is relevant to the topic	Ideas arranged in a logical cause-effect sequence	Answered all aspects required by the essay in sufficient detail
All information is relevant to water cycle and effect of pesticides	Correct sequence of events in water cycle and cause-effect of pesticides	At least (6) points on water cycle; (5) points on the effect of pesticides on food chain.
1 mark	1 mark	1 mark

TOTAL SECTION C: 20  
GRAND TOTAL: 60