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## ST BENEDICT'S COLLEGE

|                 |                        |                  |                        |
|-----------------|------------------------|------------------|------------------------|
| <b>SUBJECT</b>  | <b>LIFE SCIENCES</b>   | <b>DATE</b>      | <b>29 JANUARY 2024</b> |
| <b>GRADE</b>    | <b>12</b>              | <b>MARKS</b>     | <b>50</b>              |
| <b>EXAMINER</b> | <b>MRS S. STEGMANN</b> | <b>MODERATOR</b> | <b>MRS B. ZAJAC</b>    |
|                 |                        | <b>DURATION</b>  | <b>50 MINUTES</b>      |

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### MARKING GUIDELINES

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**Question 1:**

- 1.1. B ✓  
G ✓  
D ✓  
A ✓  
H ✓  
C ✓  
E ✓

(7)

- 1.2.  
1.2.1.  
i. a ✓ - stigma ✓  
ii. d ✓ - ovary ✓

(4)

- 1.2.2. cross-pollination ✓  
the anthers lie below the stigma ✓ to minimize/avoid self-pollination

(2)

- 1.2.3. Sexual- offers genetic variation/ diverse traits/ new characters (any 1 ✓)  
Asexual- genetically stable/ larger yield/ shorter time to get flowering plants (any 1 ✓)

(2)

- 1.3.  
1.3.1. Quadrat method ✓  
1.3.2. Indirect ✓

(1)

The population number is an estimate ✓, not an exact number

(2)

- 1.3.3. Average number of lilies =  $(5+2+3+8+1+4)/6 = 3,83$  ✓

$$\frac{3,83 \times 100}{1}$$

= 383,33 lilies → 383 lilies ✓

(4)

- 1.3.4. Eliminates bias/ allows every organism an equal opportunity to be selected/ population may not be evenly distributed ✓

(any 1)

- 1.3.5. The method is usually used for fast-moving organisms or for organisms that are not easily seen. Neither of these are true for the lilies ✓✓

(2)

**[25]**

**Question 2**

- 2.1. Primary ✓ (1)
- 2.2. There were not many terrestrial plants and therefore not enough food/ shelter ✓ (1)
- 2.3. Droppings from the gulls increased nutrient levels in the soil OR  
The gulls carried in seeds from other areas and dropped them onto the island ✓✓ (any 1 x 2)
- 2.4.
- i) Natality ✓ mortality ✓ immigration ✓ emigration ✓ (4)
  - ii) 1990 ✓- 2011/2015 ✓ (2)
  - iii) Limits space for breeding  
Lack of resources  
Increased disease ✓✓ (any 2)
- 2.5. Allows scientists to observe the process of succession without human disturbance  
No removal of plants/ animals which could disturb the food chain  
No pollution to disturb the natural habitat  
No foreign disease to destroy natural organisms  
Control alien organisms that can be brought in that may outcompete indigenous organisms  
Any other logical answer ✓ (any 1)

[13]

**Question 3**

- 3.1. A group of organisms of the same species ✓ occupying the same/certain area ✓ that are  
able to interbreed ✓ (3)
- 3.2. Predator-prey ✓ (1)
- 3.3. Reduction/decline in fish ✓ causes a decrease in the cape seal population ✓ which is prey  
of the great white shark ✓ (3)
- 3.4. Shark nets/ baited hooks/ poaching/ overfishing/ limited genetic diversity ✓✓ (any2)
- 3.5.
- i) Caused the sightings to decrease/ drop/ decline/ fall ✓ (1)
  - ii) Competitive exclusion ✓  
Killer whales are out-competing great white sharks causing a drop in their numbers due to  
lack of resources/ moving out of the area in search of resources ✓ (2)

[12]

**TOTAL: 50 MARKS**