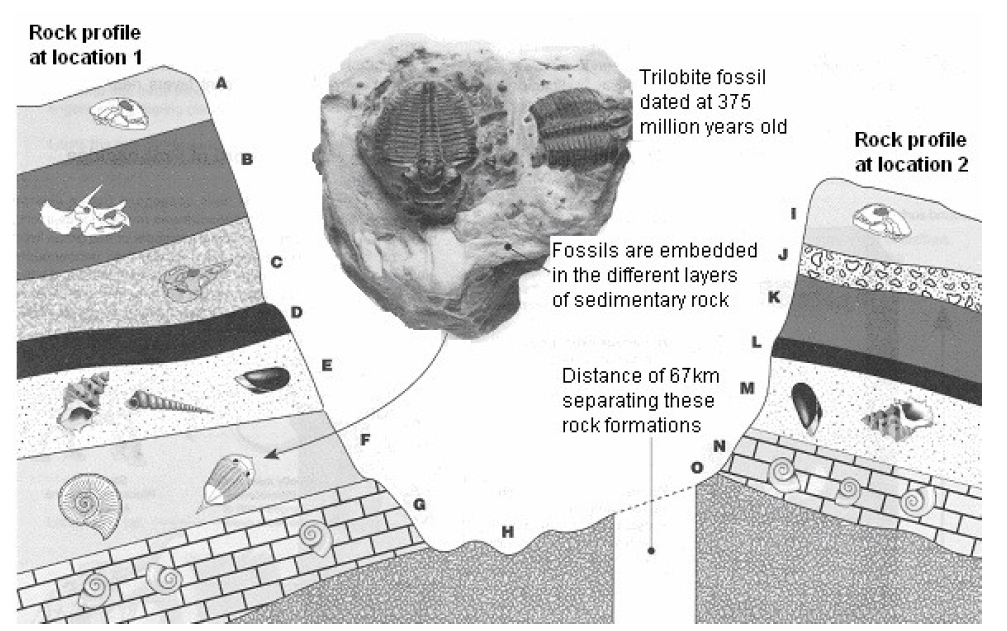
**LIFE SCIENCES GRADE 10 TOPIC : HISTORY OF LIFE**

**MARKS: 27**

**QUESTION 1**

|  |  |  |  |
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|  | The diagram below shows a hypothetical rock profile from two locations separated by a distance of 67 km. Layers D and L are volcanic ash deposits and all the other layers are sedimentary rock. |  |  |



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| --- | --- | --- | --- | --- |
|  | 1.1    1.2  1.3  1.4  1.5 | Using radiometric dating, the trilobite fossil was determined to be approximately 375 million years old. The volcanic layer (D) was dated at 270 million years old. Assuming there has been no geological activity (e.g. Folding) estimate the age of:   1. The rock in layer B 2. The rock in layer G   Which layer at location 1 is the same age as layer M at location 2?  Layers H and O are also sedimentary rocks. Give a possible explanation why there are no visible fossils in these layers.  Is it possible that a sea once covered these two locations?  Give evidence to back up your answer. | (1)  (1)  (1)  (2)  (1)  (1) **(7)** |  |

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| --- | --- | --- | --- | --- |
| 1.1 | 1.1.1  1.1.2  1.1.3  1.1.4  1.1.5 | (a) Less than/< 270 mya 🗸  (b) more than/> 375 mya 🗸  Layer E🗸  Organism eaten🗸 by predators or decomposition took place🗸  Yes🗸  The presence of sea shells🗸 in layer E and M | (1)  (1)  (1)  (2)  (1)  (1) | **(7)** |

**QUESTION 2 : ESSAY**

|  |  |  |  |
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|  | Evidence of the history of life on Earth is largely based on fossils found in South Africa. Fossil tourism is becoming very popular because people across the world come to visit South Africa`s fossil sites. Describe what fossils are, and give a detailed description on how fossils are formed. Also describe to what extend fossil tourism can contribute to opportunities and economic development of the local people |  |  |

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|  | Content:17  Synthesis:3 |  | **(20)** | |
| **POSSIBLE ANSWER : ESSAY** | |  | |  |

|  |  |  |
| --- | --- | --- |
| Fossils are the remains, imprints or traces✓ of organisms that existed on earth million years ago✓ and are preserved in rocks/ice/tar.✓  When organisms die,✓ the sediment deposited over the remains form layers.✓ The layers become compressed and hardens✓ to form rocks.✓  Within these rocks the skeleton✓ of the organisms fossilise.✓  Bones and teeth molecules✓ are replaced by silica or carbonates✓from the rocks.  Fossil tourism can generate employment opportunities✓for tour guides,✓ professional palaeontologists, ✓ anthropologists✓ and archaeologists✓  Museums and fossil sites✓attract tourists which contribute to the growth of the economy of the country✓  Tourism also improve growth and development of business✓ in restaurants, guesthouses/hotels, ✓ garages✓ and SA traditional goods. ✓  ANY 17 |  |  |

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|  | **ASSESSING THE PRESENTATION OF THE ESSAY** |  |  |

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| **Criterion** | **Relevance (R)** | **Logical sequence (L)** | **Comprehensive (C)** |
| **Generally** | All information provided is relevant to the topic | Ideas are arranged in a logical/ cause-effect sequence | All aspects required by the essay have been sufficiently addressed |
| **In this essay** | Only information relevant to fossilisation and contribution of fossil tourism to the economy of the country | Information regarding the description of fossils, formation of fossils and economic contribution of fossil tourism | Description of fossils:**2/3**  Fossilisation: **5/7**  Fossil tourism: **5/7** |
| **Mark** | **1 mark** | **1 mark** | **1 mark** |

|  |  |  |
| --- | --- | --- |
| **Synthesis** |  | (3) |
| **TOTAL** |  | **(20)**  **27** |