 Province of the

EASTERN CAPE

EDUCATION

**DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)**

**HOME SCHOOLING SELF-STUDY WORKSHEET ANSWER SHEET**

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| **SUBJECT** | LIFE SCIENCES | **GRADE** | 12 | **DATE** | 05 June 2020 |
| **TOPIC** | NEGATIVE FEEDBACK MECHANISMS | **TERM 1**  **REVISION** |  | **TERM 2 CONTENT** | ✓ |

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| --- | --- | --- | --- | --- |
| 1.1 | 1.1.1 | 0.25✓mg/cm3 |  | (1) |
|  | 1.1.2 | 15✓minutes |  | (1) |
|  | 1.1.3 | * Blood glucose level of a person with diabetes mellitus is higher✓than that of a normal person at all times✓ * There is a greater increase in the blood glucose level of a person with diabetes mellitus after ingestion of glucose✓ compared to the normal person✓ * It takes longer for the blood glucose level to stabilise for the person with diabetes mellitus✓ compared to a normal person✓ Any (2x2)   **(Mark first TWO only)** |  | (4) |
|  | 1.1.4 | * Because the person with diabetes mellitus does not produce insulin✓/is insulin resistant * therefore blood glucose is not converted to glycogen✓ |  | (2) |
|  | 1.1.5 | Glucagon✓/ Adrenalin |  | (1)  **(9)** |

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| 2.1 | 2.1.1 | | Pancreas✓ | | |  | |  |
|  | 2.1.2 | |  | | |  | | (4)  **(5)** |
| 2.2 | | 2.2.1 | | Comparison of the blood glucose level of two people✓ over 5 hours✓/before and after ingesting glucose |  | | (2) | |
|  | | 2.2.1 | | (145 – 125) ✓ (Accept numbers in range 144 -146 for the first value and 124 -126 for the second value)  = 20✓ mg/100 cm3 (Accept answer according to the values given by learner) |  | | (2) | |
|  | | 2.2.3 | | Accept any answer from 1,7 to 1,9✓ hours /102 – 114minutes/ 1h42min – 1h54min |  | | (1) | |
|  | | 2.2.4 | | (a) Thabiso✓ |  | | (1) | |
|  | |  | | (b) - His glucose level is higher than the normal range✓  - It takes longer for his glucose level to come down to its original  level✓ (Any 1)  **(MARK FIRST ONE ONLY)** |  | | (1) | |
|  | | 2.2.5 | | * When his glucose level is high✓/ 99/98mg/100cm3 * insulin✓ is secreted into the blood * to convert excess glucose into glycogen ✓ in the liver * and to stimulate the cells to absorb more glucose✓ * thus decreasing the blood glucose level✓ (Any 4) |  | | (4)  **(11)** | |
| 3.1 | 3.1.1 | | Blood✓ | | |  | | (1) |
|  | 3.1.2 | | * The pituitary gland/hypophysis is malfunctioning✓and secretes large amount of TSH✓ * Thyroid gland secretes less thyroxin✓and this will not have a negative feedback effect on the pituitary gland to secrete less TSH✓   **(Mark first TWO only)** (2 x 2) | | |  | | (4)  **(5)** |

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| 3.2 |  |  | **(5)** |

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| 3.3 | 3.3.1 | To maintain an internal balance✓/set point/homeostasis/regulate metabolism | |  | | (1) |
|  | 3.3.2 | TSH✓/thyroid-stimulating hormone | |  | | (1) |
|  | 3.3.3 | When Y/thyroxin is released at higher levels than normal:  - Metabolism will be higher than normal✓/cellular respiration increases - Heart rate increases✓  - thus all the energy from food eaten will be used✓  - leaving nothing to be utilised for storage✓/therefore could lead to a  person being underweight  - can also lead to anxiety✓ | |  | | (3)  **(5)**  **[40]** |
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