See back cover for an English translation of this cover

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91156M

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SUPERVISOR'S USE ONLY

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

Koiora, Kaupae 2, 2012

91156M Te whakaatu māramatanga ki ngā tukanga ora e pā ana ki te pūtau

2.00 i te ahiahi Rāpare 22 Whiringa-ā-rangi 2012
Whiwhinga: Whā

Paetae	Paetae Kaiaka	Paetae Kairangi
Te whakaatu māramatanga ki ngā tukanga ora e pā ana ki te pūtau.	Te whakaatu māramatanga hōhonu ki ngā tukanga ora e pā ana ki te pūtau.	Te whakaatu māramatanga matawhānui ki ngā tukanga ora e pā ana ki te pūtau.

Tirohia mehemea e ōrite ana te Tau Ākonga ā-Motu (NSN) kei tō pepa whakauru ki te tau kei runga ake nei.

Me whakautu e koe te KATOA o ngā pātai kei roto i te pukapuka nei.

Ki te hiahia koe i ētahi atu wāhi hei tuhituhi whakautu, whakamahia te (ngā) whārangi kei muri i te pukapuka nei ka āta tuhi i te tau pātai.

Tirohia mehemea kei roto nei ngā whārangi 2–15 e raupapa tika ana, ā, kāore hoki he whārangi wātea.

HOATU TE PUKAPUKA NEI KI TE KAIWHAKAHAERE HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.

TAPEKE

MĀ TE KAIMĀKA ANAKE

© Mana Tohu Mātauranga o Aotearoa, 2012. Pūmau te mana.
Kia kaua rawa he wāhi o tēnei tuhinga e tāruatia ki te kore te whakaaetanga a te Mana Tohu Mātauranga o Aotearoa.

Kia 60 meneti hei whakautu i ngā pātai o tēnei pukapuka.

MĀ TE KAIMĀKA ANAKE

PĀTAI TUATAHI: AHOTAKAKAME

He tukanga tino nui te tukanga ahotakakame mō te ora o ngā tipu me te oranga tonutanga o ētahi atu rauropi e whai oranga mai i ngā tipu. Ka rerekē te pāpātanga o te ahotakakame mai i tētahi tipu ki tētahi, ka rerekē i te wā o te rā me te wā tau, ā, kei te wāhi me te tohatohatanga o ngā whēkauiti motuhake i roto ake i te tipu.

Matapakitia te tukanga o te ahotakakame, ka whai whakaaro ki ngā take e whai ake ana mō tō whakautu:

- te pūtake o te ahotakakame
- he aha ngā mea e hiahiatia kia puta mai te ahotakakame, ā, he aha ka hua i taua tukanga
- te hanganga me te taumahi o te whēkauiti e mahi ai te ahotakakame
- ngā pūtake mō ngā rerekētanga o te pāpātanga o te ahotakakame kua kōrerohia i runga ake.

You are advised to spend 60 minutes answering the questions in this booklet.

ASSESSOR'S USE ONLY

QUESTION ONE: PHOTOSYNTHESIS

The process of photosynthesis is a critical process to the survival of plants and the survival of other organisms that depend on plants for their food. The rate of photosynthesis changes from plant to plant, varies with the time of day and the season, and depends upon the location and distribution of specialised organelles within the plant itself.

Discuss the process of photosynthesis, considering the following points in your answer:

- the purpose of photosynthesis
- what is needed for photosynthesis to occur and what the process produces
- the structure and function of the organelle where photosynthesis takes place
- reasons for changes in the rate of photosynthesis as mentioned above.

MĀ TE KAIMĀKA ANAKE

ASSESSOR'S USE ONLY

MĀ TE KAIMĀKA ANAKE

PĀTAI TUARUA: TE MAURANGA[1] I WAENGA PŪTAU

Ko te nukunga o ngā matū i waenga, i roto hoki i ngā pūtau he tino taketake ki te mahinga o ngā tukanga katoa e pā ana ki te pūtau.

Matapakitia ngā tukanga o te ingo, te rerewai me te mauranga hohe.

I tō whakautu me whakataurite ngā tukanga, e ai ki ngā ōritenga me ngā rerekētanga, ka tuku tauira anō mō ia tukunga ina pā ki roto i tētahi kararehe, tipu RĀNEI.

[1] KAWENGA

ASSESSOR'S USE ONLY

QUESTION TWO: TRANSPORT IN CELLS

The movement of materials between cells and within cells is crucial to the functioning of all processes at a cellular level.

Discuss the processes of diffusion, osmosis and active transport.

In your answer you should compare and contrast the processes, in terms of their similarities and differences, and provide an example of each process as it occurs in an animal OR plant.

MĀ TE KAIMĀKA ANAKE

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MĀ TE KAIMĀKA ANAKE

PĀTAI TUATORU: WEHENGA PŪTAU

Ko te tāruatanga pītauira te tīmatanga mō te wehenga pūtau. Pērā i ētahi atu tukanga ā-pūtau, ka whakahirihiri te tāruatanga pītauira ki te whai wāhi o ētahi pūmua whākōkī me te pāpātanga e taea ai e ēnei te mahi ā rātou mahi.

Ka pāngia te pāpātanga o te hohenga pūmua whākōkī e ngā āhuatanga pēnei i te paemahana, te pH, te matū, te kukūtanga, ngā hoa pūmua whākōkī me ngā paihana pūmua whākōkī.

Matapaki ka pēhea e whakarerekē ai pea ētahi mea e TORU o ēnei āhuatanga i te pāpātanga o te hohenga pūmua whākōkī, ā, he aha i hira ai tēnei mō te tāruatanga pītauira.

ASSESSOR'S USE ONLY

QUESTION THREE: CELL DIVISION

DNA replication is the starting point for cell division. In common with other cellular processes, the replication of DNA is reliant on the presence of a number of enzymes and the rate at which they can carry out their function.

The rate of enzyme activity can be affected by factors such as temperature, pH, substrate, concentration, co-enzymes and enzyme poisons.

Discuss how any THREE of these factors can change the rate of enzyme activity, and why this would be important in the case of DNA replication.

MĀ TE KAIMĀKA ANAKE

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He puka anō mēnā ka hiahiatia.
Tuhia te (ngā) tau pātai mēnā e hāngai ana.

TAU PĀTAI

MĀ TE KAIMĀKA ANAKE

Extra paper if required.
Write the question number(s) if applicable.

QUESTION NUMBER

ASSESSOR'S USE ONLY

English translation of the wording on the front cover

Level 2 Biology, 2012

91156 Demonstrate understanding of life processes at the cellular level

2.00 pm Thursday 22 November 2012
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of life processes at the cellular level.	Demonstrate in-depth understanding of life processes at the cellular level.	Demonstrate comprehensive understanding of life processes at the cellular level.

91156M

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–15 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

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