Level 3 Extended Diploma in Health and Social Care (Adults) (Northern Ireland) - 603/5355/7

Assessment Code: HSC NI/SAE

Paper number: P001677

Assessment date/window: 17/05/2023

This report contains information in relation to the external assessment from the Chief Examiner, with an emphasis on the standard of learner work within this assessment window.

The aim is to highlight where learners generally perform well as well as any areas where further development may be required.

Key points:

- Grade Boundary Information
- Administering the external assessment
- Evidence creation
- Standard of learner work
- Responses of the tasks
- Regulations for the Conduct of External Assessment

It is important to note that learners should not sit the external assessment until they have taken part in the relevant teaching of the full qualification content.

Grade boundary and achievement information

Each learner's external assessment paper is marked by an Examiner and awarded a raw mark. During the awarding process, a combination of statistical analysis and professional judgement is used to establish the raw marks that represent the minimum required standard to achieve each grade. These raw marks are outlined in the table below.

Grade	NYA	N	D	C	B	A	A*
Raw mark grade boundaries	0	11	21	31	41	52	63

Below you will find the percentage of learners that achieved each grade.

Grade	NYA	N	D	C	B	A	A*	Learners	486
% of learners	16.87	46.50	24.07	8.64	3.50	0.62	0.00	Pass Rate	36.83%

Administering the external assessment

The external assessment is invigilated and must be conducted in line with our Regulations for the Conduct of External Assessment. Learners may require additional pre-release material in order to complete the tasks within the paper. These must be provided to learners in line with our Regulations.

Learners must be given the resources to carry out the tasks and these are highlighted within the Qualification Specific Instructions Document (QSID).

Evidence creation

Learners should use the space provided to answer questions. Where answers are typed or additional pages included, the learners name, centre number, centre name and task number must be clearly visible. The additional paper must then be securely attached to the workbook.

Standard of learner work

The quality and standard of work was quite good. Overall, in this paper, the students fared well as they had longer time to prepare. The standard varied somewhat from centre-to-centre judging by the responses provided by the students. Majority of the students attempted to answer all the questions, which was beneficial as even though they may not be confident in their answer, they could gain valuable marks which would otherwise been lost.

There were some excellent answers, in which learners were able to demonstrate their application of knowledge, clear, appropriate understanding and impact both holistically and specifically as required per questions. These students were clearly able to use their power of analysis to demonstrate their knowledge of concepts and theories.

Given below are the responses and possible exemplar answers.

Responses of the tasks within the sections of the external assessment paper

SECTION A

Question 1a

Which of the following piece of equipment is used to measure respiratory rate?
This question carried 1 mark. Many students answered pulse oximeter. The correct answer was a watch.

Question 1b. 1mark
Taking in is one function of respiration by the lungs. Identify other function of respiration.

Majority of the learners got this right as there were two possible answers, which were removal of waste products or removal of Carbon dioxide CO_2.

Question 1c. 3 Marks

Identify three structures of the respiratory system involving the passage of air that are after the trachea.
This question was moderately answered. Many students mentioned other organs of the body and some mentioned structures before the trachea. Correct three answers were Bronchi or bronchus, bronchioles and alveoli.

Question 1d. 4 Marks

Explain the process of gaseous exchange within the lungs.
This question was mostly attempted in general terms such as inhalation Oxygen and exhalation of Carbon dioxide. An exemplar answer could be Oxygen reached the alveoli, tiny air sacs, which are one cell thick to allow diffusion. Oxygen enters the blood stream via the capillaries and Carbon dioxide leaves the blood stream into the alveoli to be expelled.

Question 1e. 5 Marks

Identify two muscles of respiration and describe the structure / or function of these muscles.
Many students misunderstood this question as they described other muscles and their functions. Those that answered correctly, gave good explanation and managed to score 4/5 marks. The correct answers were Diaphragm and intercostal muscles.

- Diaphragm is a thin dome shaped muscle that is located below the lungs. Upon inhalation, the diaphragm contracts and flattens and the chest cavity enlarges. This contraction creates a vacuum, which pulls air into the lungs. Upon exhalation, the diaphragm relaxes and returns to its domelike shape, and air is forced out of the lungs.
- Intercostal muscles are situated between the ribs. During inhalation, they contract, pulling the ribcage upwards and outwards. The diaphragm contracts, pulling downwards, which increases the volume of the thorax and the pressure inside decreases which creates a vacuum. During exhalation, the intercostal muscles relax pulling the ribcage downwards and inwards relaxing the

diaphragm, doming upwards which decreases the volume of the thorax and the pressure inside increases to push the air out.

Question 1f. 6 marks. 3 marks for application and knowledge (AO2) and 3 marks for analysis to demonstrate knowledge of concepts and / or theories (AO3)

Explain how ventilation is controlled.
Majority of the students answered this question generically repeating what they said prior to this in other questions. Some gave a little more detailed answers, but none scored full marks. An exemplar answer could be:
The ventilation process is controlled by the CNS or by the parts of brain. The pons controls the rate of involuntary respiration while medulla oblongata signals the muscles involved in breathing. The motor cortex situated withing the cerebral cortex via the respiratory pathway. **(AO2).** Chemoreceptors in the blood measures pH (which indicated Carbon dioxide levels). The two centres of Pons, work in unison to either stimulate or limit the breathing rate, which results in the medulla sending signals to the respiratory muscles to affect expiration or inspiration. These nerve signal can be overridden by the chemoreceptor messages in periods of activity such as exercise. **(AO3)**

SECTION B

Question 2a. Total marks 12, AO1 =2, AO3 = 5, AO3 = 5.

Charlie is 5 year old. Charlie's health visitor raised concerns when Charlie showed delayed learning to walk, run and ride a tricycle. Charlie has been prone to falls and trips. Following a referral to a specialist, Charlie was diagnosed with muscular dystrophy, MD.

Discuss the likely effects of MD on Charlie's wellbeing.

This was a well answered question. Many learners focused on his holistic wellbeing, both in future as well as immediate. An exemplar answer could include any of the following:
<u>Physical:</u>

- AO1: He may have difficulty with mobility.
- AO2: May experience muscle pain or joints may become stiff or loose
- AO3: May develop difficulty with swallowing, may have heart problems.

<u>Cognitive:</u>

- AO1: May develop learning difficulties
- AO2: This could lead to experiencing difficulties with multitasking and problem solving
- AO3: He may have an IQ within the normal range, which means cognitive impairment without an intellectual impairment.

<u>Emotional:</u>

- AO1: May affect how he feels about himself,
- AO2: Could experience frustration when unable to mobilise or carry out any daily tasks, which could result in angry outbursts at all around him

- AO3: Could become anxious due to physical restrictions and feelings about his abilities resulting in later developing depression.

Social:

- AO1: His interactions may reduce due to his poor mobility
- AO2: Might not be able to make friends due to his conditions and may feel social isolation. Friends may find it difficult to include in their activities
- AO3: He may miss schooldays making it harder to socialise with friends, may result in fewer opportunities to engage in extracurricular activities.

This is not an exhaustive list.

Q2b. 1 mark

Two types of movement are available at the elbow joint. One is flexion.

Identify the other type of movement.
May different answers were given but not relating to the elbow. The correct answer was extension.

Question 2c. 4 Marks

Agonist and synergist are two roles of muscles.

Identify two other roles of muscles and describe one of those roles.
The correct answers were antagonist and fixator which both carried a mark each. Antagonist opposes the action of another muscle. These muscles are found in pairs as one contracts, the other one relaxes. Fixator stabilises the part of a body during movement. This assists the function of agonist muscle by giving a stable point for the muscle to pull against.

Question 2d. 3 Marks AO1 = 1 and AO3 = 2.

There are two types of muscle fibres.

Identify one of these muscle fibres and explain the function of this muscle fibre.
Any students identified smooth and striated muscles. The correct answers were Type 1 and Type 2 (A and B). If the students identified type A and B, this answer was accepted. Explanation could be that Type 1 is a slow twitch muscle fibre and they generate force at a slow rate which gives a slower rate of fatigue. Type 2 is a fast twitch muscle fibre which generate a force at faster rate and thus has a faster rate of fatigue. Any other suitable answers were accepted.

SECTION C

Question 3a. 9 Marks A01 = 3, Ao2 = 3, AO3 = 3.

Discuss likely effects of cardiovascular disease on Natalia's cognitive and emotional wellbeing.

This question only asks for emotional and cognitive wellbeing. Many students spent a lot of time and effort using PIES which made them concentrate on physical and social wellbeing, thus losing valuable marks. Those who did follow and question, were able to provide very good answers. For cognitive response, we are looking for the following: (This is not an exhaustive list)

Cognitive:
AO1: Pain and discomfort from her cardiovascular disease may make it harder for her to concentrate, which could make it harder for Natalia to remember and could lead to confusion.
AO2: She could become disoriented, and this could lead to impaired thinking and reasoning. Her situation could lead to her to Alzheimer's and dementia.
AO3: As a result of poor circulation, her condition can reduce oxygen to the brain which could result in reduction of sodium levels. Some of her cognitive impairment may not return.

Emotional:
AO1: She could be fearful due to her condition, may become weary of carrying out tasks due to potential risks. Not carrying out activities may result in her isolation leading to feeling lonely, and sad.
AO2: May not be able to work which could affect her self-esteem, feel worthless for not being able to contribute. If unable to work could lead to financial difficulties which may make her worry more.
AO3: She could become anxious due to the subsequent issues from her health and reduced self-esteem could lead to depression. Her mental health issues could affect her compliance with medication making her feel worse. Any other suitable answers were acceptable.

Question 3b. 4 Marks. AO1 = 1 mark, AO3 = 3 marks.

Arteries are a type of major blood vessel that carry blood away from the heart.

Identify the type of major blood vessel that carry blood to the heart and explain the structure of this blood vessel type.
Many learners went on to identify aorta, pulmonary artery etc. The answers we were looking for are veins (Vena Cava – superior and / or anterior), Pulmonary vein. (AO1) The veins have bigger diameters, valves to prevent back flow of the blood due to being at low pressure. They have three layers. Outer is connective tissue, middle is a layer of smooth muscle, and inner layer consists of endothelial cells. (AO2)

Question 3c. Marks 4, AO1 = 1 mark, AO3 = 3 marks.

Identify the smallest types of blood vessels and describe these blood vessels.
The correct answers were capillaries or venules. (AO1). Capillaries are numerous blood vessels which connect arteries to veins (via venules if mentioned was acceptable). They have thin walls which allow the transfer of Oxygen, nutrients and waste products to and from the tissue. They are at low pressure.

Question 3c. 3 Marks AO3 = 3

Identify three valves in the heart.

Many learners mentioned cardiac or aorta. The correct answers were tricuspid, bicuspid or mitral, pulmonary and aortic valves.

SECTION D
Question 4a. 1 mark.

Identify the hormone produced by the ovaries.
Many learners mentioned other hormones but the correct answer was Oestrogen.

Question 4b. 5 Marks AO1 = 3, AO3 = 2.

When the external temperature increases, thermoregulation is used to keep the body cooler.

Identify three mechanisms that are used to keep the body cooler and explain the function of one of these mechanisms.
Many learners misinterpreted this question and responded with answers as to how they would keep cool. Others identified mechanisms that were opposite. The exemplar answers could have been hairs lie flat, sweating, vasodilation and redness of the skin.
Hairs lie flat to prevent air being trapped thus insulating the body. It allows sweat to evaporate more easily, and heat given off more easily due to vasodilation. Sweating uses the heat energy to evaporate thus cooling the body down. In vasodilation, the blood vessels leading to the capillaries become more wider which increases the blood surface area to allow the heat to escape. The skin reddens due to the increased blood flow and darkening of the skin allows more heat to be given off i.e. Escape from the body.

Question 4c. 3 Marks AO1 = 3

Identify three ways to use a thermometer to take a person's temperature.
The correct answers were Oral or in the mouth, Rectal or in the bottom, Axillary where the thermometer is placed in the armpit, Tympanic where the thermometer is placed in the ear and Temporal artery where the thermometer scans the surface of the forehead.

Question 4d. 6 marks: AO2 = 3 and AO3 = 3

Explain the role of negative feedback in homeostasis
Many students mentioned parturition (childbirth) is release of oxytocin from the posterior pituitary gland during labour is an example of positive feedback mechanism. Many gave examples correctly but got muddled up in their answers indicating they did not understand the negative feedback correctly.
Homeostasis is when the body responds to a change in environment either internally or externally. Negative feedback resets the condition back to normal state. Receptors detect a change and send signals to the hypothalamus which in turn instructs to release hormones or proteins which act to oppose the stimulus that triggered the response initially.

Question 4e. 5 marks. AO1 = 4 AO3 = 1.

Stress can affect physiological measurements.

Identify four physiological measurements affected by stress and briefly explain the effect that stress has on one of these measurements.

This question was answered by all most all learners, However, many misunderstood the question and mentioned equipment that measures the physiological measurements such as BP monitor, pulse oximeter etc. The exemplar answer could be respiration rate, pulse, blood pressure, oxygen saturation and temperature. Respiration rate increases as the body needs more oxygen ‘in fight or flight response’, pulse increases to ensure oxygen reaches the muscles faster, blood pressure increases to increase the blood flow, Oxygen saturation reduces as Oxygen is utilised and temperature increases as increased activity produces more heat.

Regulations for the conduct of external assessment

Malpractice

There were 2 instances of malpractice in this assessment window. The Chief Examiner would like to take this opportunity to advise learners that instances of malpractice (for example, copying of work from another learner) will affect the outcome on the assessment.

Maladministration

0 maladministration was reported in this assessment window. The Chief Examiner would like to highlight the importance of adhering to the Regulations for the Conduct of External Assessment document in this respect.

Chief Examiner: Kshitij Bhatt
Date: 01/07/2023