higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

THE HUMAN BODY AND MIND
NQF LEVEL 4

15 November 2024

This marking guideline consists of 9 pages.

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QUESTION 1

1.1 1.1.1 sigmoid
1.1.2 trachea
1.1.3 liver
1.1.4 diaphragm
1.1.5 duodenum
1.1.6 heart
1.1.7 kidney
1.1.8 lungs
1.1.9 nephron
1.1.10 trachea

(10 × 1) (10)

1.2 1.2.1 1 − occipital bone
2 − posterior fontanelle
3 − parietal bone
4 − anterior fontanelle
5 − lambdoid suture
6 − sagittal suture
7 − coronal suture
8 − frontal bone (8)

1.2.2
- Bone plates of the infant skull have not grown together and are kept in place by sutures.
- Fontanelles are found where bone plates meet.
- Fontanelles and sutures allow overlapping of bone plates during birth. (Any 2 × 1) (2)

1.2.3 The circumference of the skull is measured✓ to see if the brain is growing.✓ (2)

1.3
- After inhalation there is a high concentration of oxygen in the alveoli
- Oxygen diffuses from the alveoli to the capillary network around the alveoli where blood is oxygenated
- Oxygenated blood moves from the alveoli through the pulmonary veins
- To the left atrium and then into the left ventricle on its way to the aorta
- Arteries branch off the aorta to carry oxygenated blood to all cells and tissues of the body (5)

1.4
- Veins and venules carry deoxygenated blood from the body through the superior and inferior vena cava✓ into the right atrium then to the right ventricle✓ of the heart to the pulmonary arteries in the lungs✓
- Deoxygenated blood moves to the venous capillary network around the alveoli where carbon dioxide diffuses into the alveoli✓
- Carbon dioxide moves through the bronchioles and bronchus and the trachea to the nose from where it is exhaled✓ (5)

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1.5 1.5.1
2 − heart
3 − thyroid gland
4 − liver
5 − stomach

1.5.2
1 − thoracic cavity
6 − abdominal cavity
8 − pelvic cavity

(4 × 2) (8)
[40]

QUESTION 2

2.1 2.1.1 urinary system
2.1.2 endocrine system/digestive system ✓
2.1.3 digestive system
2.1.4 endocrine system
2.1.5 endocrine system
2.1.6 central nervous system
2.1.7 respiratory system
2.1.8 digestive system
2.1.9 urinary system
2.1.10 digestive system

(10 ×1) (10)

2.2 2.2.1
- Skeletal system and muscular system.
- Muscles are attached to the skeleton to allow movement. (2)

2.2.2
- The lungs regulate inhalation and exhalation.
- The heart pumps oxygen and carbon dioxide in the blood.
- Blood vessels are the connection between the heart and lungs.

(Any 2 × 1)
(2)

2.3 2.3.1
1 − Cerebrum
2 − Pons
3 − Midbrain
4 − Medulla oblongata
5 − Cerebellum
6 − Spinal cord
7 − Brain stem (7)

2.3.2
- Coordinate voluntary movements
- Motor skills such as balance, coordination, and posture

(Accept any relevant answer) (Any ONE) (1)

2.3.3 Vertebral column/meninges/cerebrospinal fluid. (1)

2.4 2.4.1 Red blood cells
2.4.2 Bone marrow
2.4.3 Haemoglobin
(3 × 1) (3)

2.4.4
- Cilia filters the inhaled air through sweeping movements and traps pollen, dust, bacteria and foreign substances.
- Mucous membrane lines the respiratory organs and traps unwanted inhaled particles.
- Sensory receptors initiate sneezing and coughing reflexes to expel foreign particles that invaded the respiratory system.
- Blood vessels warms and moistens inhaled air. (4)

2.5 2.5.1 Reflex arc (1)

2.5.2 1 − receptor
2 − sensory nerve
3 − inter neuron/connector neuron
4 − motor nerve
5 − effector✓ (5)

2.6
- Gurgling phase lasts until baby is around 6 months old and they make sounds that differ from speech.
- Babbling phase lasts from around 6 to 12 months.
- Babies make vowel and consonant sounds to indicate their physical needs.
- They play with speech sounds and imitate their parents. (4)

[40]

QUESTION 3

3.1 3.1.1 receptors
3.1.2 cartilage
3.1.3 arteries
3.1.4 homeostasis
3.1.5 cardiac
3.1.6 tendons
3.1.7 pleura
3.1.8 scrotum
3.1.9 meninges
3.1.10 skeletal
(10 × 1) (10)

3.2 3.2.1 1 − pituitary
2 − thyroid
3 − adrenal
4 − testes (4)

3.2.2 Pituitary gland is the master gland of the body✓ that controls all other endocrine glands✓ (2)

3.2.3 3 − adrenaline
6 − thymosin (2)

3.2.4
- Calcitonin. Regulates calcium levels.
- Thyroxine. Regulates body's metabolic rate. (2)

3.3 3.3.1
- The pelvis is wider and shorter.✓
- The sacrum is shorter and able to move.✓
- The coccyx can move.✓
- The pelvic inlet and pelvic outlet are wider.✓
- Shortly before labour hormones stimulate the pelvic bones✓ and joints to loosen and soften slightly to create a wider birth canal.✓

(Any 3 × 2) (6)

3.3.2 The key function of the male pelvis is to support the heavier and more physical build of the male. (2)

3.3.3
- Features of the female pelvis play an important role when a woman is in labour.
- The size and shape of the female pelvis is adapted so that it makes a normal, uncomplicated delivery of a baby possible. (2)

3.4
- Sympathetic nervous system.
- Prepares the body for stressful/emergency situations where a person needs to defend (fight).
- Helps a person to know what to do in immediate danger.

- Parasympathetic nervous system.
- Works against action.
- Allows the body to function under normal conditions (rest and digest).

(3 × 2) (6)

3.5 Secretion is the transport of substances from one region in the body to another part of the body.✓
Products of secretion perform other functions in the body.✓

Excretion is the elimination of waste products that is no longer useful in the body.✓
Products of excretion is faeces, urine, sweat and carbon dioxide.✓ (2 × 2) (4)

[40]

QUESTION 4

4.1

4.1.1	E
4.1.2	B
4.1.3	G
4.1.4	L
4.1.5	I
4.1.6	K
4.1.7	D
4.1.8	A
4.1.9	F
4.1.10	J
4.1.11	M
4.1.12	C

(12 × 1) (12)

4.2

4.2.1 Pancreas (1)

4.2.2
- Insulin✓ raises blood sugar levels.
- Glucagon✓ lowers blood sugar levels. (2 × 2) (4)

4.2.3
- Digestive system/Gastrointestinal system
- Endocrine system/Hormonal system (2)

4.3

4.3.1 Children are attached to people they know and care for them

4.3.2 When the child is removed from a person they regard as an attachment figure.

4.3.3 Children want to be close to people whom they trust.

4.3.4 Children see their attachment figure as a base of safety.

(4 × 1) (4)

4.4

4.4.1
- Infants learn to know the world through their senses and movement.
- They acquire object permanence.

4.4.2
- They are not able to think logically
- They are egocentric and think things around them belong to them.
- They only see things from their point of view.
- They become curious.
- They learn to use words and pictures to represent objects.
- Language and thinking improve.
- Level of understanding is still at the concrete level. (Any ONE)

4.4.3
- They begin to think logically.
- They are able to perform mental operations.
- They understand the concept of observation. (Any ONE)

4.4.4
- Children can think abstractly.
- They can solve problems and approach problems from a different point of view.
- They think about abstract concepts such as space and time.
- They develop an inner value system and sense of moral judgement. (Any ONE)

(Any 4 × 1) (4)

4.5
- Operant behaviour is identified by the consequences of behaviour.
- Respondent behaviour refers to a specific response to a known stimulus. (2)

4.6 4.6.1 Laurence Kohlberg (1)

4.6.2 1 − Obedience and Punishment
2 − Individual interest/Instrumental relativist
3 − Interpersonal relationships/norms
4 − Maintaining social order (4)

4.7
- Deceased persons who legally donated their bodies before death for medical research.
- Deceased people who were not identified or claimed by family.
- Body donation programmes where selfless donors contribute to the training of many health professionals. (Any 2 × 1) (2)

4.8
- Organ trafficking is the practice of stealing or buying organs through exploitation to be sold on a black market for profit.
- Victims are murdered or kidnapped, and their organs are removed.
- Victims are tricked into believing they require an operation and whilst under anaesthetic have an organ removed, without knowledge or consent.
- Surgical extracting an organ involves major surgery major risks involved.
- Victims are forced or may be misled about the nature of the medical procedure and recovery.
- The extraction of some organs is performed on living donors has a risk to life and future quality of life.
- Vulnerable populations, migration, and extreme poverty are at highest risk of being trafficked for their organs.
- People sell their organs in desperation to get out of immediate financial problems.
- South African law forbids the sale of organs for transplantation. (Any 4 × 1) (4)

[40]

QUESTION 5

5.1
5.1.1 False
5.1.2 False
5.1.3 False
5.1.4 True
5.1.5 False
5.1.6 True
5.1.7 True
5.1.8 False

(8 × 1) (8)

5.2 5.2.1
- Somatic nervous system
- Autonomic nervous system (2)

5.2.2
- Somatic nervous system refers to voluntary actions✓ e.g. moving your arm, reading, sticking out your tongue✓
- Autonomic nervous system refers to involuntary actions✓ e.g. heartbeat, respiration, actions of the digestive system✓ (2 × 2) (4)

5.3
- Alcohol interferes with digestion as it secretes digestive enzymes in the pancreas rather than secreting it in the small intestines
- These enzymes are harmful to the pancreas
- If alcohol is consumed excessively over a long time, it can cause inflammation of the pancreas which can lead to chronic pancreatitis
- Large amounts of alcohol can cause loss of testosterone
- Men could experience erectile dysfunction and emotional changes.
- Drinking heavily can cause a steep rise in blood sugar levels which is especially dangerous for diabetics. (Any 4 × 1) (4)

5.4
- Visual perception✓ − is the process where information is obtained by the sense of sight and interpreted by the brain. Visual perception plays an important part in all learning activities and everyday life. People need to see things and observe how things are done.✓

- Auditory perception✓ − is the ability to hear, understand and interpret sounds and words correctly. Auditory learners remember facts well only by listening.
  Poor auditory perception has a negative effect on oral language, spelling and written work.✓

- Tactile perception✓ − is the ability to perceive, interpret and give meaning to information received from the sense of touch.✓ (Any 3 × 2) (6)

5.5 FIGURE 13 − Trust v Mistrust
FIGURE 14 − Intimacy v Isolation
FIGURE 15 − Initiative v Guilt
FIGURE 16 − Ego integrity v Despair
FIGURE 17 − Identity v Role confusion✓ (5 × 2) (10)

5.6 Negative

- Feelings of anxiousness and depression
- Disruption of sleep
- Constant distraction
- Antisocial behaviour
- Contribute to fake news and rumour spreading.
- Increase the feelings of loneliness and isolation.
- Exposure to cyberbullying to harass, bully, and intimidate others.
- Decline in face-to-face communication.
- Social isolation.
- Peer pressure.
- Unrealistic views of other people's lives.
- Constant comparisons with others.

Positive

- Increases awareness about what is happening in the country and the world.
- It can change beliefs by providing relevant information
- It can help combat loneliness
- It makes you feel part of a community
- It creates and maintains relationships (Any 4 × 1) (4)

5.7

- Possible responses:
- Use as a basis for future studies in the medical field.
- Use knowledge of how the body systems work when I am diagnosed with a possible disease.
- Give advice to family and friends.
- To make informed decisions about lifestyle choices. (Any 2 × 1) (2)

[40]

TOTAL: 200

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