higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

THE HUMAN BODY AND MIND
NQF LEVEL 4

(9020094)

18 November 2019 (X-Paper)
09:00–12:00

This question paper consists of 13 pages.

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TIME: 3 HOURS
MARKS: 200

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Read ALL the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each question on a NEW page.
5. Use only blue or black INK.
6. Write neatly and legibly.

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QUESTION 1

1.1 Choose the correct word or words from those given in brackets. Write only the word or words next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

1.1.1 The (carotid/coronary) arteries branch off from the aorta to supply oxygenated blood to the tissue of the heart.

1.1.2 Voice is produced during (exhalation/inhalation).

1.1.3 In males the (ureter/urethra) is common to both the urinary system and the reproductive system.

1.1.4 The suture where the two parietal bone plates meet is the (sagittal/coronal) suture.

1.1.5 The palpation of the heart can be seen on the (anterior/posterior) fontanelle on an infant skull.

1.1.6 The trachea lies (anterior/posterior) to the oesophagus in the thoracic cavity.

1.1.7 The vena cava takes (oxygenated/deoxygenated) blood to the heart.

1.1.8 The oesophagus passes from the thoracic cavity to the abdominal cavity through the (diaphragm/peritonium).

1.1.9 The last part of the large intestines is the (sigmoid colon/caecum).

1.1.10 The (appendicular/axial) skeleton consists of the pectoral and pelvic girdle.

(10 × 1) (10)

1.2 Give ONE physical property of each of the following organs.

1.2.1 Urinary bladder

1.2.2 Kidney

1.2.3 Small intestines

1.2.4 Vagina

1.2.5 Diaphragm

(5 × 1) (5)

1.3 Give the names of the following Anatomical structures:

1.3.1 The digestive organ between the oesophagus and the small intestine.

1.3.2 The tubes that carry urine from the kidneys to the bladder.

1.3.3 The skeleton that protects the spinal cord.

1.3.4 The protective layers that enclose the brain and spinal cord.

1.3.5 The largest organ in the abdomen.

(5 × 1) (5)

1.4 Label FIGURE 1 below. Write only the letter next to the question number (1–10) in the ANSWER BOOK.

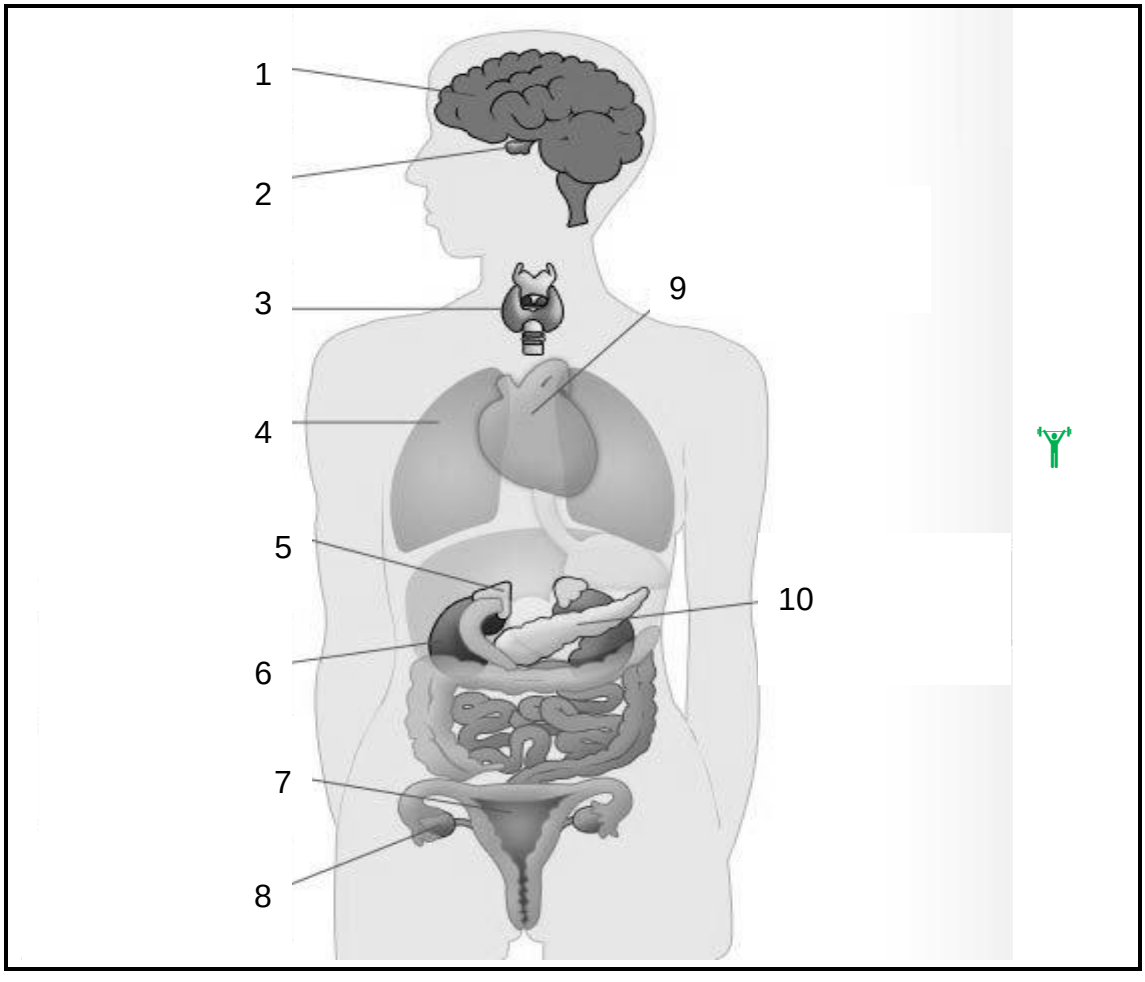
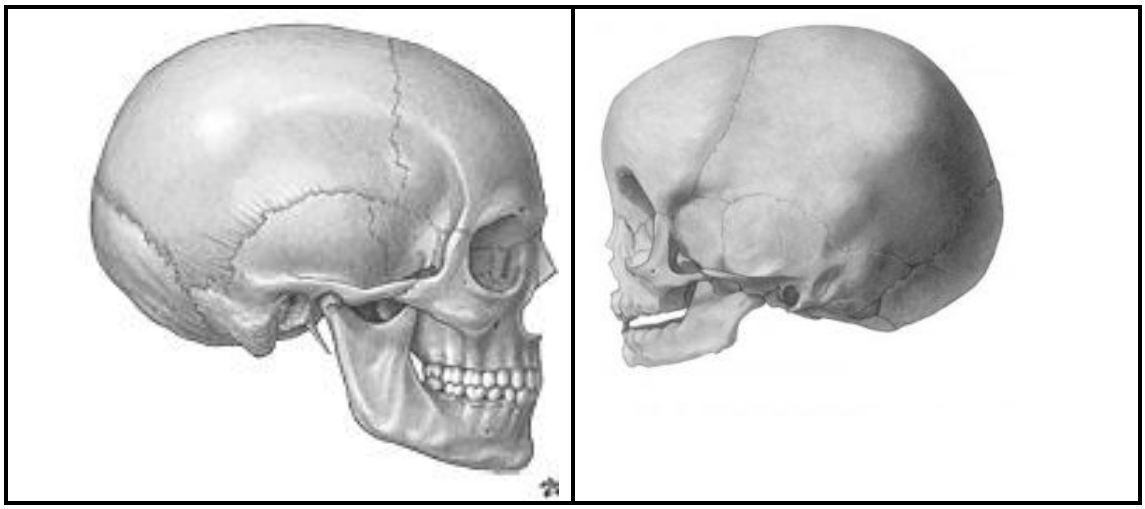


FIGURE 1 (10)

1.5 Compare FIGURE 2 diagrams below and answer the questions.



ADULT SKULL **INFANT SKULL**

FIGURE 2

1.5.1 Explain why the facial part of an infant's skull is smaller in proportion to the rest of the skull. (5)

1.5.2 Explain why the cranial part of an infant's skull is bigger in proportion to the rest of the skull. (2)

1.5.3 What is the reason for a baby's head to look out of shape after normal delivery? (2)

1.5.4 How will a mother of a newborn baby know that the baby is dehydrated? (1)

[40]

QUESTION 2

2.1 Indicate whether the following statements are TRUE or FALSE. Write only 'True' or 'False' next to the question number (2.1.1–2.1.10) in the ANSWER BOOK.

2.1.1 The hypodermis lies between the dermis and epidermis.

2.1.2 Blood vessels dilate when the skin needs to retain heat.

2.1.3 The flap of cartilage that keeps food out of the trachea is the epiglottis.

2.1.4 The pharynx only acts as passage for food.

2.1.5 The circulatory system consists of cardiovascular and lymphatic systems.

2.1.6 Skeletal muscles are the only voluntary muscles.

2.1.7 The walls of veins are thicker and more elastic than other blood vessels.

2.1.8 C-shaped cartilage rings keep the larynx open.

2.1.9 The spinal cord extends downwards from the medulla oblongata.

2.1.10 Blood cells are formed in the red bone marrow.

(10 × 1) (10)

2.2 Give the main function of each of the following systems:

2.2.1 Respiratory system

2.2.2 Cardiovascular system

2.2.3 Nervous system

2.2.4 Lymphatic system

2.2.5 Endocrine system

(5 × 1) (5)

2.3 Complete the following sentences by using the words provided in the list below. Write only the word(s) next to the question number (2.3.1–2.3.10) in the ANSWER BOOK

cartilage; narrower; female; coccyx; pubic arch; male; labour; acetabulum; ileum; sacrum; pelvic

2.3.1 The … pelvis is taller, narrower and more compact.

2.3.2 The … in females is less sloped which creates more outwardly spread of the hipbones.

2.3.3 The … girdle is stronger and more rigid than the shoulder girdle.

2.3.4 The features of a female pelvis play an important role when a woman is in …

2.3.5 Both the pelvic inlet and the pelvic outlet of the human adult male are … than the female pelvic inlet and the pelvic outlet.

2.3.6 The head of the femur fits into the … to form the hip joint.

2.3.7 The … in males curves forward and is not able to move or bend.

2.3.8 The ileum is connected to the … at the sacroiliac joint.

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2.3.9 … joins the two pubic bones anteriorly at the pubic symphysis.

2.3.10 The … in males are less than 90°.

(10 × 1) (10)

2.4 Cartilage is found in different areas of the body. It plays an important role in movement of the body.

2.4.1 Name FOUR areas in the body where cartilage is found. (4)

2.4.2 What is the function of cartilage? (2)

2.4.3 What can you do to ensure you strong skeletal and muscular systems? (4)

2.5 The muscular and skeletal systems depend on each other to function optimally.

Do you agree? Motivate your answer. (5)

[40]

QUESTION 3

3.1 Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–L) next to the question number (3.1.1–3.1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
3.1.1	The movement of a gas from areas with a high concentration to areas with a low concentration	A	defecation
3.1.2	Part of the lung that is responsible for gas exchange	B	coordination
3.1.3	The condition in which the internal environment of the body remains constant	C	homeostasis
3.1.4	Transmit nerve impulses to effector organs (muscles and glands)	D	rest-digest
3.1.5	Parasympathetic nervous system	E	fight or flight
3.1.6	Sympathetic nervous system	F	hyperglycemia
3.1.7	Interaction between a baby's eyes and ears	G	alveoli
3.1.8	Dangerously high blood sugar levels	H	motor nerves
3.1.9	Dangerously low blood sugar levels	I	sensory nerves
3.1.10	Excretion of faeces	J	diffusion
		K	hypoglycemia
		L	micturition

(10 × 1) (10)

3.2 What would happen if carbon dioxide was not removed from the body? (5 × 2) (10)

3.3 List FIVE substances that are transported by the blood. (5)

3.4 Study FIGURE 3 and answer the questions.

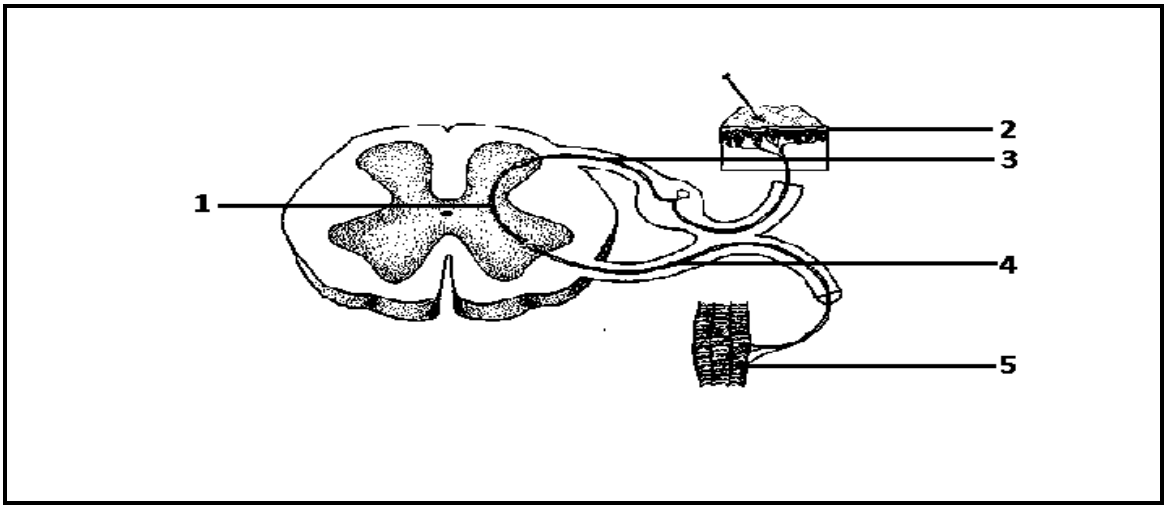

FIGURE 3

3.4.1 What does the diagram illustrate? (2)

3.4.2 Explain the process in the brain if a finger is pricked by a pin. (5)

3.4.3 What do you think will happen if the sensory receptors in the body do NOT function anymore? (3)

3.5 Read the following statement and answer the question.

The respiratory system and the cardiovascular system depend on each other to ensure that the body can function optimally.

Do you agree with the above statement? Motivate your answer. (5)
[40]

QUESTION 4

4.1 Various options are given as possible answers to the following questions. Choose the correct answer and write only the letter (A–D) next to the question number (4.1.1–4.1.10) in the ANSWER BOOK.

4.1.1 The hormone that plays an important role in maintaining male characteristics:

A Testosterone
B Oestrogen
C Oxytocin
D Progesterone

4.1.2 The rise in carbon dioxide level in blood stimulates the respiratory centre in the … to breathe deeper.

A cerebellum
B hypothalamus
C medulla oblongata
D spinal cord

4.1.3 Oxygen combines with … so that it can be carried to body tissues.

A haemoglobin
B hydrogen
C nitrogen
D carbon dioxide

4.1.4 … respiration is the movement of oxygen from the alveoli to capillaries.

A Internal
B Pulmonary
C External
D Laboured

4.1.5 … respiration is the movement of oxygen from capillaries to the cells of the body.

A Internal
B pulmonary
C external
D Laboured

4.1.6 The master gland of the body is the …

A pineal gland
B prostate
C hypothalamus
D pituitary gland

4.1.7 … are released into the synaptic space to allow a nerve impulse to be transmitted.

A Hormones
B Neurotransmitters
C Antibodies
D Nutrients

4.1.8 … acts on mammary glands to stimulate milk production.

A Thyroid Stimulating Hormone
B Prolactin hormone
C Luteinising hormone
D Follicle stimulating hormone

4.1.9 The … secretes the hormone melatonin that plays a role in the regulation of sleep/wake cycles.

A thalamus
B pituitary gland
C brainstem
D pineal gland

4.1.10 The pituitary gland is controlled by the …

A cerebrum
B cerebellum
C medulla oblongata
D hypothalamus

(10 × 1) (10)

4.2 Waste products are produced during metabolic processes in the body. It is important that these waste products must be excreted.

4.2.1 Name the systems that are responsible for removing waste products from the body. (4)

4.2.2 Explain the process of elimination of urine. (6)

4.3 What would the result be if waste products are not excreted by the systems mentioned in QUESTION 4.2.1. (4)

4.4 The pancreas plays an important role in regulating blood sugar levels. Answer the following questions concerning the pancreas.

4.4.1 Name the TWO hormones that are secreted by the pancreas. (2)

4.4.2 Give the main function of the hormones mentioned in QUESTION 4.4.1. (2 × 2) (4)

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4.4.3 Which chronic disease will be present if the hormones mentioned in QUESTION 4.4.2 is not excreted? (2)

4.4.4 From which part of the pancreas is the hormones secreted? (2)

4.5 Identify a gland from the following descriptions.

4.5.1 The gland that secretes growth hormone.

4.5.2 The gland that secrete progesterone and oestrogen.

4.5.3 The gland that secrete adrenaline.

4.5.4 The gland that secrete thymosin to stimulate the development of T-lymphocytes and is found between the lungs.

4.5.5 The gland that secrete the male sex hormone.

4.5.6 This gland is shaped like a butterfly and secretes calcitonin and thyroxine.

(6 × 1) (6)

[40]

QUESTION 5

5.1 Complete the following sentences by filling in the missing word or words from the list below. Write only the word or words next to the question number (5.1.1–5.1.10) in the ANSWER BOOK.

principles; Jean Piaget; B F Skinner; Erik Erikson, separation; connection; external; respondent; operant; senses; Kohlberg; punishment; morals

5.1.1 Closure, constancy and context are … that affect perception.

5.1.2 Perception refers to how we interpret information from the environment through our …

5.1.3 … behaviour refers to a specific response to a known stimulus where a stimulus (snowing) takes place before the response (shivering) takes place.

5.1.4 The cognitive development theory of … focuses on how children understand and interact with the world.

5.1.5 … developed the theory of moral development.

5.1.6 During pre-conventional morality children follow rules to avoid …

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5.1.7 Kohlberg believes that at birth all humans have no … or ethics.

5.1.8 At the age of five morality is …

5.1.9 We look at the consequences of behaviour to identify … behaviour.

5.1.10 Psychology explains the … between the body and the mind.

(10 × 1) (10)

5.2 Describe the stages of acquiring language before the age of three. (8)

5.3 Give ONE example of good communication and ONE example of bad communication. (2)

5.4 According to Erik Erikson a person passes through eight different psychosocial development stages. Each stage has positive and negative outcomes. Each stage presents challenges that the person has to handle.

Choose the negative outcome of each stage from the list below. Only write the answer next to the question number (5.4.1–5.4.8) in the ANSWER BOOK.

despair; mistrust; inferiority; guilt; shame and doubt; stagnation; role confusion; isolation

5.4.1 Trust

5.4.2 Autonomy

5.4.3 Initiative

5.4.4 Industry

5.4.5 Identity

5.4.6 Intimacy

5.4.7 Generativity

5.4.8 Integrity

(8 × 1) (8)

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5.5 Piaget's stages of cognitive development are listed in the table below. Choose the stage from the table below and write only the stage next to the question number (5.5.1–5.5.4) in the ANSWER BOOK.

pre-operational stage; sensori-motor stage; stage of concrete operations; stage of formal operations

5.5.1 Children have the ability to see that objects or quantities remain the same even if their physical appearance changes.

5.5.2 Infants learn to know the world through their movements and sensations.

5.5.3 Children can think abstractly, approach and solve problems from different angles.

5.5.4 Children are egocentric and think objects belong to them.

(4 × 2) (8)

5.6 How would you solve language issues at your college? (4)

[40]

TOTAL: 200

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