higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

THE HUMAN BODY AND MIND
NQF LEVEL 4

(9020094)

27 February 2018 (Y-Paper)
13:00–16:00

This question paper consists of 12 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. Write neatly and legibly.

NSC

QUESTION 1

1.1 Give ONE word or a term for each of the following descriptions by choosing a word or a term from the list below. Write only the word or term next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

sternum; heart; diaphragm; Fallopian tubes; kidneys; oesophagus; uterus; meninges; small intestine; large intestine

1.1.1 The dagger-shaped bone that is found on the anterior side of the rib cage

1.1.2 The dome-shaped muscle that separates the thoracic and abdominal cavities

1.1.3 The long, thick tube that is about one and a half metres long where food is digested and nutrients are absorbed

1.1.4 The protective layers that enclose the brain and spinal cord

1.1.5 The long, thin tube that takes up most of the space in the abdominal cavity

1.1.6 The muscular tube that connects the pharynx to the stomach

1.1.7 The muscular tubes that extend from both sides of the uterus to the ovaries

1.1.8 A hollow, muscular organ where a foetus grows during pregnancy

1.1.9 Bean-shaped, dark red organs found in the upper, posterior abdominal area on both sides of the vertebral column

1.1.10 A hollow, pear-shaped, muscular organ found in the thoracic cavity

(10 × 1) (10)

1.2 Identify each of the systems below. Write only the name of the system next to the question number (1.2.1–1.2.5) in the ANSWER BOOK.

1.2.1 The system that transports oxygen, carbon dioxide, nutrients and waste products throughout the body, in the blood

1.2.2 The system that attacks foreign substances that cause harm in the body

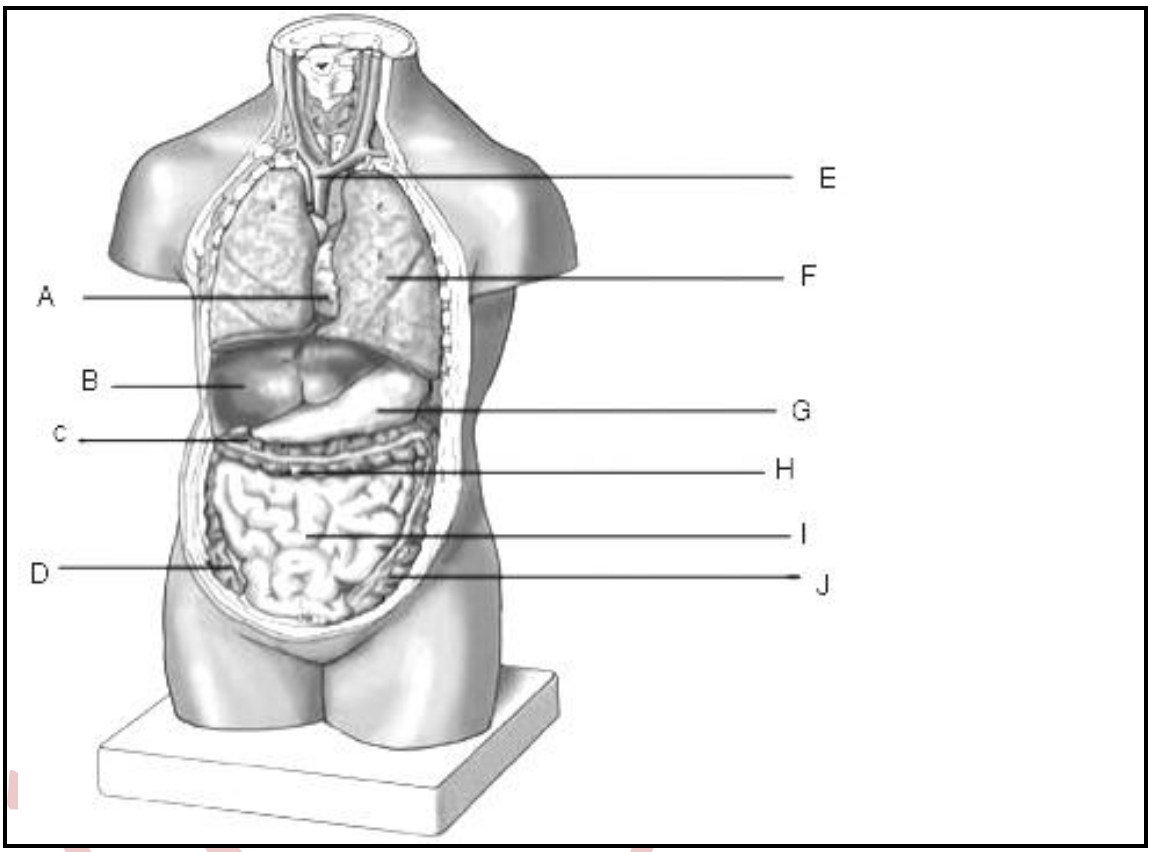
1.2.3 The system that is responsible for breaking down food so that nutrients can be absorbed

1.2.4 The system that secretes hormones into the blood

1.2.5 The system that contains bones, ligaments, cartilage and bone marrow

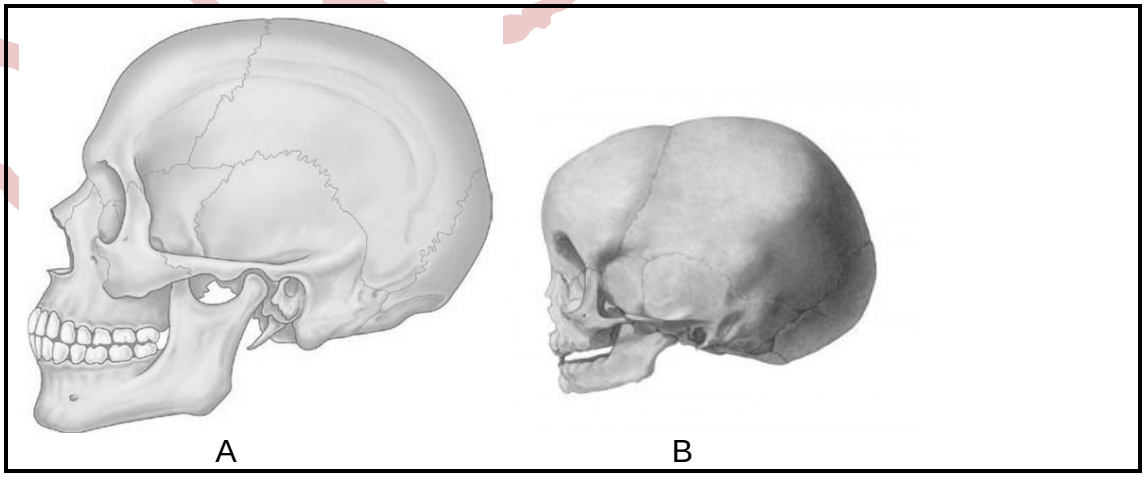
(5 × 2) (10)

1.3 Label the parts in the picture below. Write the letter (A–J) and the answer next to the question number (1.3) in the ANSWER BOOK.



[Source: *Pearson*] (10)

1.4 Study the diagrams below and answer the questions.



[Source: *humananatomychart.us*]

1.4.1 Identify DIAGRAM A and DIAGRAM B. (2)

1.4.2 Refer to DIAGRAM B and explain why the facial area of DIAGRAM B is smaller than the facial area of DIAGRAM A. (2 × 2) (4)

1.4.3 Give TWO differences between the cranial bones of DIAGRAM A and DIAGRAM B. (2 × 2) (4)

[40]

QUESTION 2

2.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (2.1.1–2.1.10) in the ANSWER BOOK.

2.1.1 The tricuspid valve is found between the right atrium and right ventricle.

2.1.2 The human body systems all work independently from each other.

2.1.3 The circulatory system consists of the cardiovascular and endocrine systems.

2.1.4 The thyroid gland is found behind the sternum.

2.1.5 There are 12 cranial nerves.

2.1.6 The left atrium receives blood from the superior and inferior vena cava.

2.1.7 The pharynx is common to both the respiratory system and the digestive system.

2.1.8 There are no blood vessels or nerve endings in the epidermis.

2.1.9 Cartilage is softer and more flexible than bone.

2.1.10 The walls of arteries are thicker and more elastic than other blood vessels.

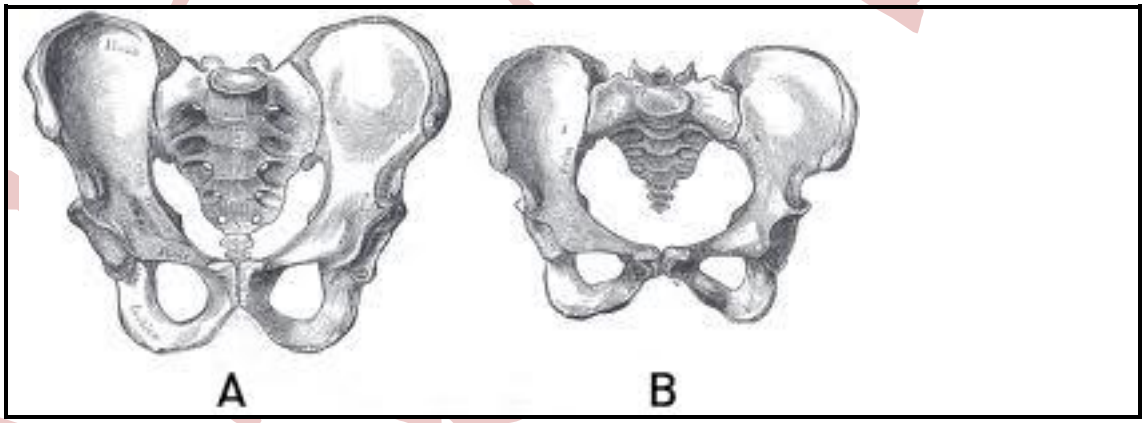
(10 × 1) (10)

2.2 Complete the following table by giving ONE function and ONE physical property of each of the organs. Redraw the table in the ANSWER BOOK.

	ORGAN	FUNCTION	PHYSICAL PROPERTY
2.2.1	Trachea		
2.2.2	Pancreas		
2.2.3	Uterus		
2.2.4	Lungs		
2.2.5	Urethra		

(5 × 2) (10)

2.3 Study the diagrams below and answer the questions.



[Source: *www.dorenarode.com*]

2.3.1 Identify DIAGRAM A and DIAGRAM B. (2)

2.3.2 State FOUR features of DIAGRAM B. (4)

2.3.3 State FOUR features of DIAGRAM A. (4)

2.4 Why do you think there are differences between DIAGRAM A and DIAGRAM B? (5)

2.5 What do you think are the advantages of studying The Human Body and Mind? (5)

[40]

QUESTION 3

3.1 Choose a description from COLUMN B that matches an item 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	Prolactin	A	lowers blood sugar levels
3.1.2	Insulin	B	stimulates breasts to produce milk after childbirth
3.1.3	LH	C	affects the uterus and mammary glands
3.1.4	HGH	D	maintains normal calcium levels in the blood
3.1.5	Oxytocin	E	stimulates the secretion of testosterone, progesterone and oestrogen
3.1.6	FSH	F	hormone of emergency
3.1.7	Calcitonin	G	stimulates growth, repair and reproduction of cells and tissues in the body
3.1.8	Adrenaline	H	responds to signals of thirst and water regulation
3.1.9	Testosterone	I	stimulates the production of sperm in males and ova in females
3.1.10	Progesterone oestrogen	J	development of physical male characteristics during puberty
		K	raises blood sugar levels
		L	development of physical female characteristics during puberty

(10 × 1) (10)

3.2 Blood is an important transport medium in the human body.

Name FIVE substances that are transported by blood. (5)

3.3 What would the result be if each of the following waste products are not removed from the body?

3.3.1 Carbon dioxide

3.3.2 Urine

3.3.3 Faeces

(3 × 3) (9)

3.4 Which system controls the excretion of waste products from the body? (1)

3.5 Read the scenario below and answer the questions.

> Rian was walking home when he suddenly heard gunshots. He got a fright and ran home as fast as he could. Abraham was relaxing and watching movies with his family at his home.

3.5.1 Describe the effect of the sympathetic nervous system on Rian.

3.5.2 Describe the effect of the parasympathetic nervous system on Abraham.

(2 × 5) (10)

3.6 The nervous system is seen as the controlling system of the body and trauma to the brain and spinal cord will have negative consequences.

Comment on this statement. (5)

[40]

QUESTION 4

4.1 Various options are given as possible answers to the following questions. Choose the 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 responsible for normal development of physical male characteristics during puberty:

A Testosterone
B Follicle-stimulating hormone
C Luteinising hormone
D Oxytosin

4.1.2 The endocrine gland(s) of the male reproductive system is/are the …

A prostate.
B pituitary.
C pineal.
D testes.

4.1.3 The hormone(s) responsible for normal development of physical female characteristics during puberty:

A Oestrogen and progesterone
B Follicle-stimulating hormone
C Luteinising hormone
D Oxytosin

4.1.4 The endocrine gland(s) of the female reproductive system is/are the …

A Graafian follicles.
B ovaries.
C pituitary.
D pineal.

4.1.5 Mature ova are released from the ovaries during …

A ovulation.
B menstruation.
C menopause.
D puberty.

4.1.6 An examination to detect early signs of cervical cancer:

A Mammogram
B Vasectomy
C Blood tests
D Pap smear

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4.1.7 Fertilisation of an ovum by a sperm occurs in the …

A Fallopian tube.
B ovary.
C uterus.
D vagina.

4.1.8 Ovaries become smaller and produce less oestrogen during …

A puberty.
B pregnancy.
C menopause.
D ovulation.

4.1.9 Sensory pathways take information to the …

A muscles.
B brain and spinal cord.
C heart.
D thymus gland.

4.1.10 Motor pathways take impulses from the brain and spinal cord to the … of the body.

A respiratory organs
B digestive organs
C effector organs
D urinary organs

(10 × 1) (10)

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

4.3 State FOUR functions of the digestive system. (4)

4.4 Read the extract below and answer the questions.

> The pituitary gland is the size of a pea and is often called the master gland of the body. Although the pituitary gland looks like one gland, it actually has two distinct parts that have two very separate functions. The pituitary gland is attached to the hypothalamus, the part of the brain that controls its activity. The pituitary gland secretes a variety of hormones into the bloodstream.

[Source: *www.healthline.com*]

4.4.1 Why is the pituitary gland often called the master gland of the body? (2)

4.4.2 Name the TWO parts of the pituitary gland. (2)

4.4.3 What is the main function of hormones? (4)

4.5 Read the paragraph below and answer the questions.

> The pancreas is an organ which is located in the abdomen. It extends from the duodenum to the spleen. The pancreatic duct runs through the pancreas and joins with the common bile duct before it drains into the duodenum. The pancreas has two main functions: a digestive function and an endocrine function.

4.5.1 Describe the TWO functions of the pancreas as mentioned in the paragraph. (2 × 2) (4)

4.5.2 Which condition develops in a person if the pancreas does not produce enough insulin? (2)

4.5.3 How is the condition mentioned in QUESTION 4.5.2 controlled? (2)

4.5.4 Explain the meaning of *hyperglycaemia* and *hypoglycaemia*. (2 × 2) (4)

[40]

QUESTION 5

5.1 Choose the correct word or words from those given in brackets. Write only the word or words next to the question number (5.1.1–5.1.10) in the ANSWER BOOK.

5.1.1 (Erik Erikson/BF Skinner) explained growth of personality in eight stages in his theory of psychosocial development.

5.1.2 If infants are not cared for properly, they will find it difficult to (trust/mistrust) others.

5.1.3 If adolescents are confused they may develop negative (feelings/identity).

5.1.4 Children who do not develop a sense of industry will develop a sense of (inferiority/guilt) during their primary school years.

5.1.5 If overcontrolling parents do not allow infants to explore their abilities they will develop a feeling of (self-doubt/autonomy).

5.1.6 Many people who are depressed might use (therapy/substances) in the hope of escaping their problems.

5.1.7 Each sensory system has its own (reaction/receptors) to sense stimuli from the environment.

5.1.8 Perception refers to how we interpret information from the environment through our (senses/emotions).

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5.1.9 (Respondent/Operant) behaviour refers to a specific response to a known stimulus where the stimulus takes place before the response takes place.

5.1.10 To identify (respondent/operant) behaviour the consequence of behaviour is taken into account.

(10 × 1) (10)

5.2 Name and explain the first TWO stages of Laurence Kohlberg's theory of moral development. (3 × 2) (6)

5.3 People contact each other in various ways.

Name THREE ways in which people can contact each other through technology. (3)

5.4 Name THREE types of perception. (3 × 2) (6)

5.5 Read the scenario below and answer the questions.

Four children are playing in the park. Anni is crawling all over and likes to touch everything and then put it in her mouth. John does not want to share his toys and it is not easy for him to see a situation from other people's perspective. Sisanda is an adolescent and she can think abstractly. Her thoughts are more flexible, rational and systematic. Jwambi is in primary school and likes to do projects.

5.5.1 Name the development stage of each person in the scenario.

(4 × 2) (8)

5.5.2 Name the theorist known for the development of the cognitive theory? (2)

5.6 Is the body part of the mind or is the mind part of the body?

Comment on this question. (5)

[40]

TOTAL: 200

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