higher education & training

Department:
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REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

THE HUMAN BODY AND MIND
NQF LEVEL 4

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
THE HUMAN BODY AND MIND
NQF LEVEL 4
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. Use only a black or blue pen.
5. Write neatly and legibly.

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QUESTION 1

1.1 Choose the correct term from those in brackets. Write only the answer next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

1.1.1 The last part of the large intestine is the (sigmoid/descending) colon.

1.1.2 When swallowing food, the epiglottis blocks the (trachea/-oesophagus) to prevent food entering the wrong passage.

1.1.3 An organ of the digestive system that produces bile is the (liver/gallbladder).

1.1.4 The (diaphragm/peritoneum) divides the thoracic and abdominal cavities.

1.1.5 The first section of the small intestines is the (jejunum/duodenum).

1.1.6 The (kidney/heart) is a hollow, muscular, pear-shaped organ about the size of a fist.

1.1.7 The (spleen/kidney) is a dark red, bean shaped organ.

1.1.8 The only place where oxygenated blood flows in an artery is in the (lungs/brain).

1.1.9 The kidneys form urine in the (nephron/neuron).

1.1.10 C-shaped cartilage rings keep the (oesophagus/trachea) open.

(10 × 1) (10)

1.2 Study the diagram and answer the questions.

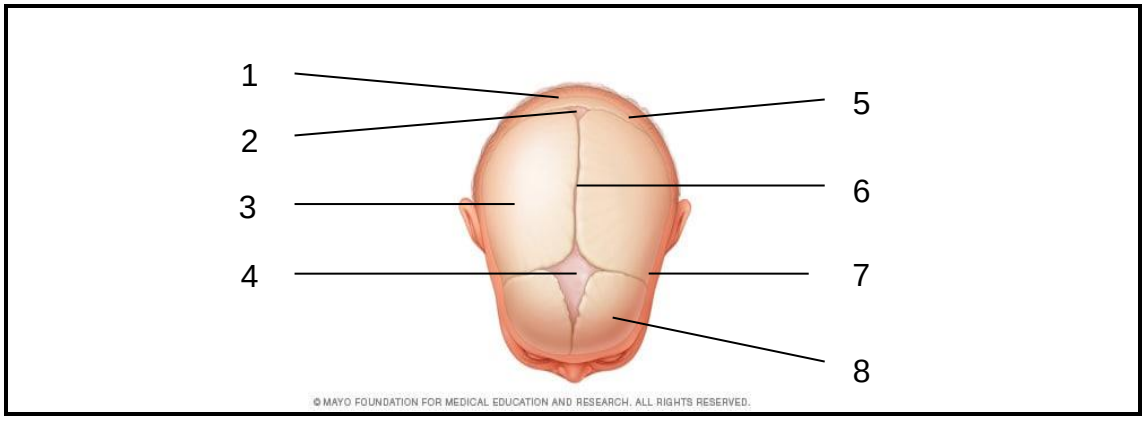


FIGURE 1

1.2.1 Label the diagram. Write the answer next to the number (1−8) in your ANSWER BOOK. (8)

1.2.2 What are the reasons for the presence of sutures and fontanelles on the skull of an infant? (2)

1.2.3 Explain the process taking place in FIGURE 2 below and give ONE reason why this process is conducted. (2)



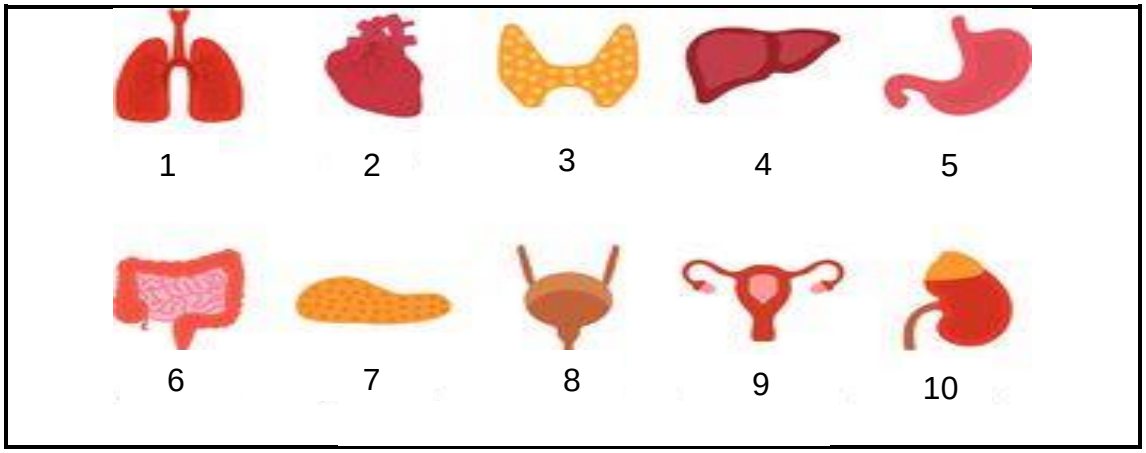
[Source: *med.umn.edu*]

FIGURE 2

1.3 Explain external and internal respiration of oxygen from inhalation until it reaches the cells. (5)

1.4 Explain internal and external respiration of carbon dioxide from the cells to exhalation. (5)

1.5 Study FIGURE 3 below and answer the questions that follow.



[Source: *Can Stock Photos*]

FIGURE 3

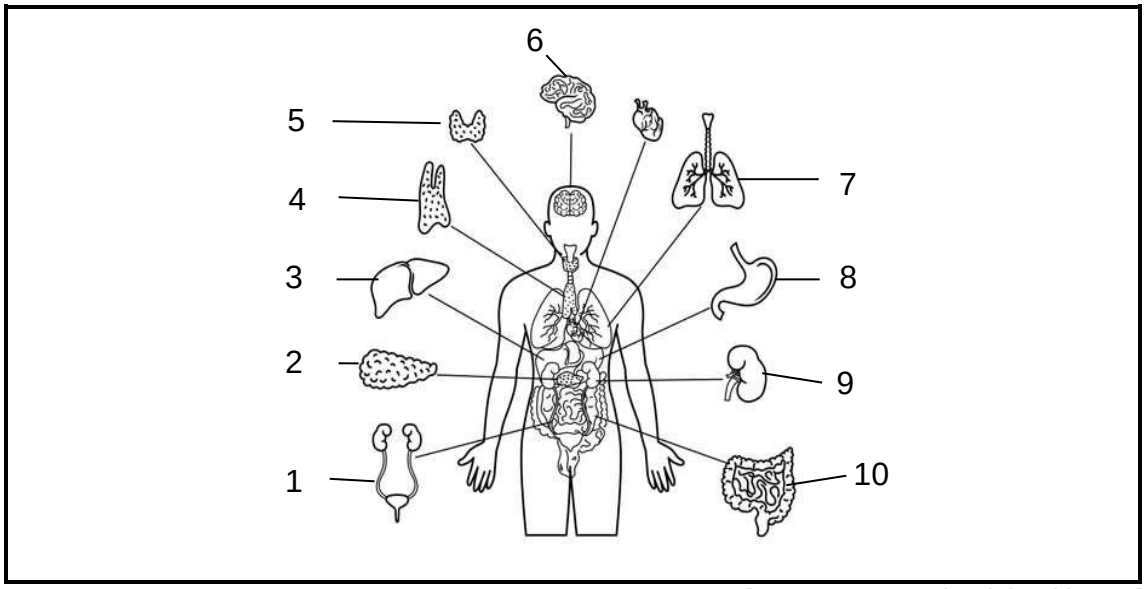
1.5.1 Identify the organs numbered 2, 3, 4 and 5. (4)

1.5.2 Identify the cavity in which the organs numbered 1, 6, and 9 are situated. (4)

[40]

QUESTION 2

2.1 Study FIGURE 4 diagram below and indicate to which system each of the organs belongs. Write only the system next to the number (1−10) in the ANSWER BOOK. (10)



[Source: *www.orlandohealth.com*]

FIGURE 4

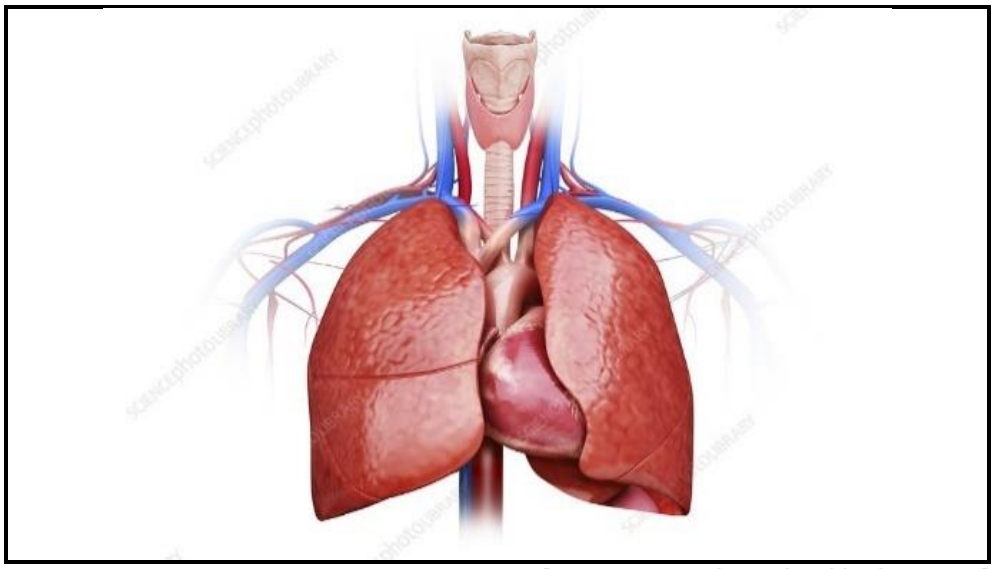
2.2 2.2.1 Identify the TWO systems in FIGURE 5 below and explain the connection between them. (2)



[Source: *ginnlibrary.tufts.edu*]

FIGURE 5

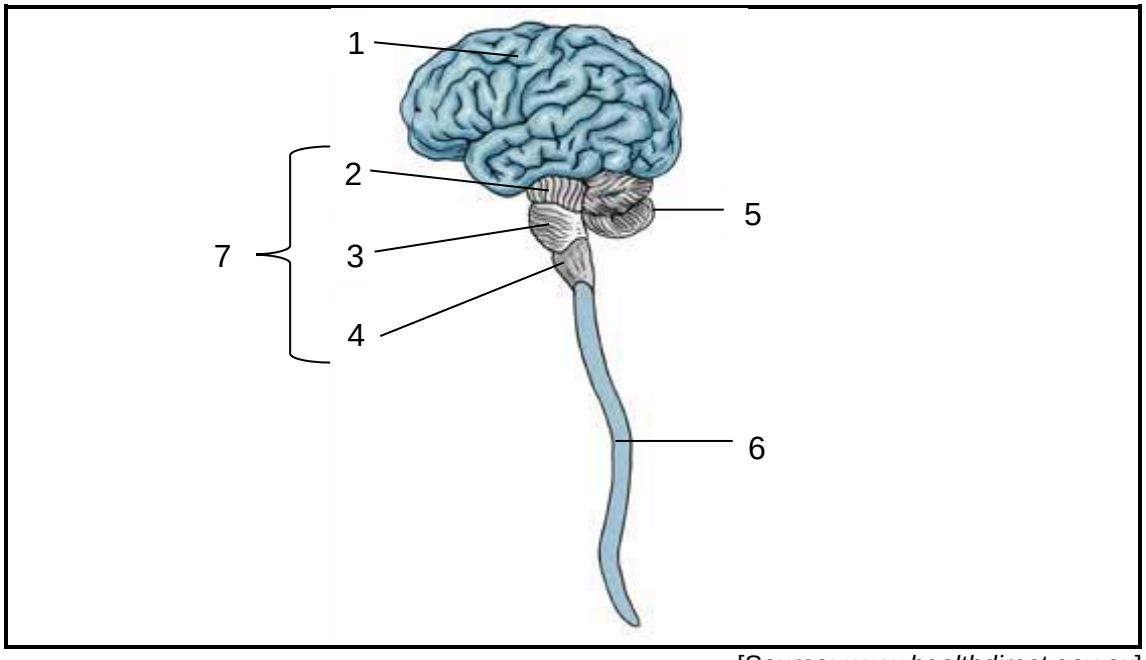
2.2.2 Study FIGURE 6 below and indicate how the cardiovascular and respiratory systems depend on each other. (2 × 1) (2)



[Source: *www.betterhealth.vic.gov.au*]

FIGURE 6

2.3 Study FIGURE 7 below and answer the questions that follow.



[Source: *www.healthdirect.gov.au*]

FIGURE 7

2.3.1 Label the diagram. Write the answer next to the number (1−7) in your ANSWER BOOK. (7)

2.3.2 Give the function of the organ numbered 5. (1)

2.3.3 Name the structure that protects the organ numbered 6. (1)

2.4 Answer the following questions:

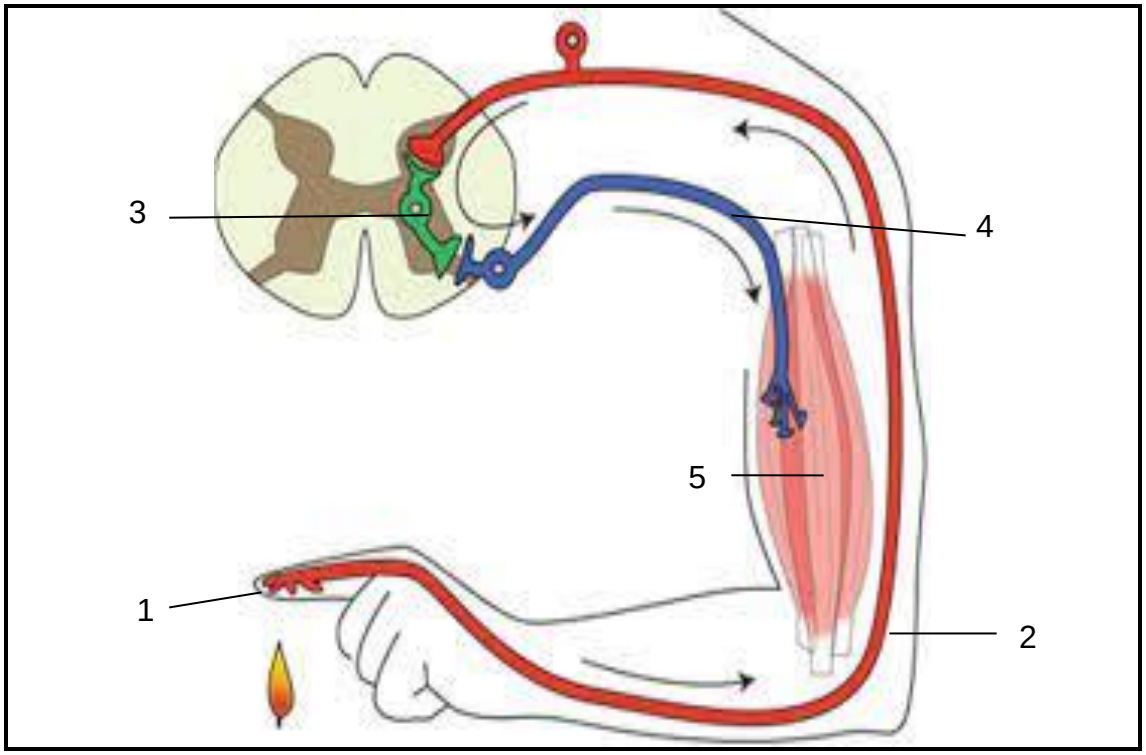
2.4.1 Which type of blood cell carries oxygen? (1)

2.4.2 Where is blood formed? (1)

2.4.3 Oxygen combines with … to ensure oxygen can be circulated and absorbed by body tissues. (1)

2.4.4 Briefly explain the protective function of the respiratory system. (4)

2.5 Study FIGURE 8 below and answer the questions.



[Source: *www.ncbi.nlm.nih.gov*]

FIGURE 8

2.5.1 Identify the process which is illustrated in FIGURE 8 above. (1)

2.5.2 Label the diagram. Write the number and answer in the ANSWER BOOK. (5)

2.6 Explain how the language of a baby develops during the pre-linguistic stage. (4)

[40]

QUESTION 3

3.1 Complete the following sentences by choosing a word from the list below. Write only the answer next to the question number (3.1.1–3.1.10) in the ANSWER BOOK.

pleura; cartilage; meninges; arteries; scrotum; receptors; skeletal; homeostasis; tendons; pleura; pyloric; cardiac

3.1.1 Sensory organs have … to sense information from the environment.

3.1.2 … is softer and more flexible than bone.

3.1.3 The walls of … is thicker and more elastic than other blood vessels.

3.1.4 The condition in which the internal environment of the body remains constant is …

3.1.5 The … sphincter prevents food from the stomach to flow back to the oesophagus.

3.1.6 … attach muscles to bones.

3.1.7 … surround the lungs to give protection.

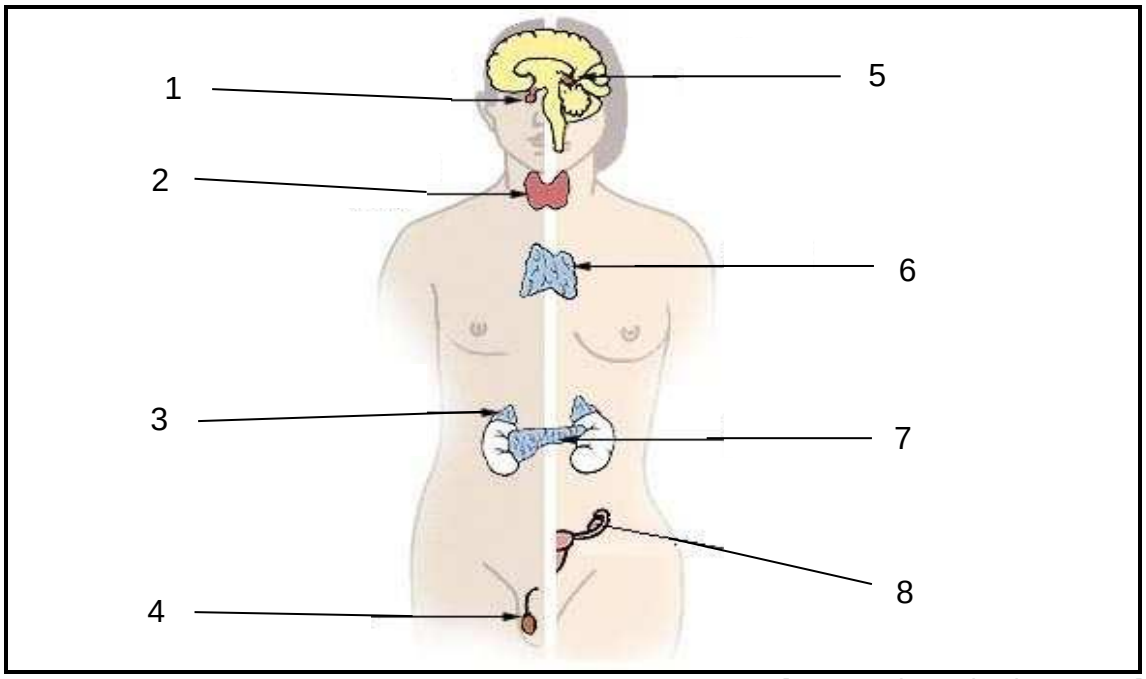
3.1.8 The … protects the testes.

3.1.9 … contains the cerebrospinal fluid.

3.1.10 … are the only voluntary muscles in the body.

(10 × 1) (10)

3.2 Study FIGURE 9 below and answer the questions that follow.



[Source: *theancienthome.com*]

FIGURE 9

3.2.1 Name the glands numbered 1, 2, 3 and 4. (4)

3.2.2 Give the main function of gland numbered 1. (2)

3.2.3 Name the hormone that is secreted from the glands numbered 3 and 6. (2)

3.2.4 Give the function of the hormones secreted by the gland numbered 2. (2)

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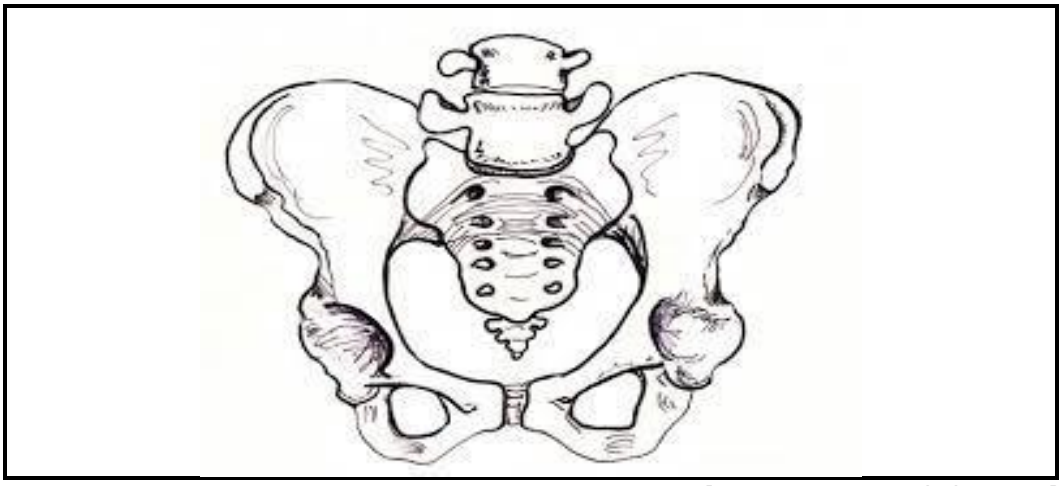
3.3 Study FIGURE 10 below of the female pelvis' physical properties that are different from the male pelvis and answer the questions that follow.



[Source: *www.northshore.org*]

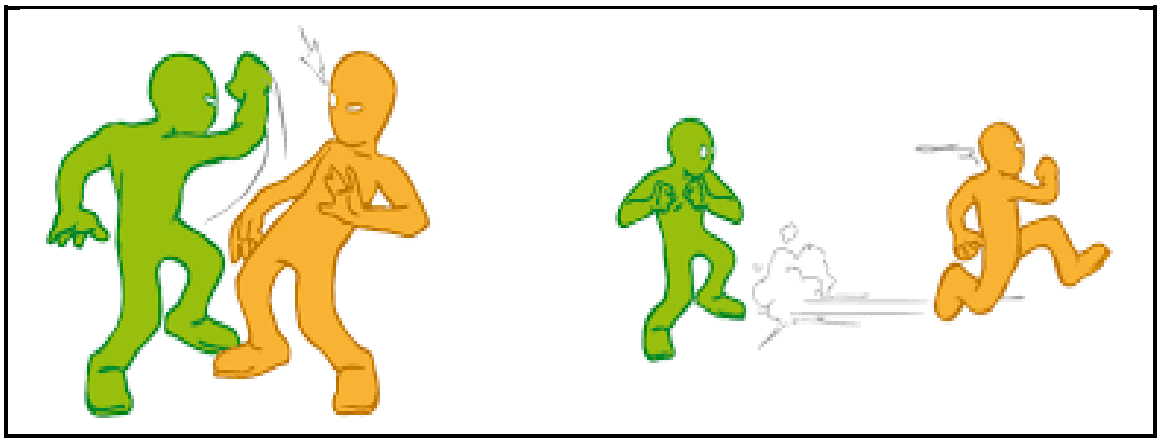
FIGURE 10

3.3.1 Explain how the female pelvis has adapted to make normal delivery of a baby possible. (3 × 2) (6)

3.3.2 What is the function of the male pelvis? (2)

3.3.3 Give reasons why there is a difference between the male and female pelvis. (2)

3.4 Study FIGURE 11 and answer the question that follows.



[Source: *my.clevelandclinic.org*]

FIGURE 11

Name and briefly explain TWO divisions of the autonomic nervous system as illustrated in FIGURE 11. (3 × 2) (6)

3.5 Secretion and excretion are two important processes in the body. Differentiate between secretion and excretion. (2 × 2) (4)

[40]

QUESTION 4

4.1 Choose an item from COLUMN B that matches a description in COLUMN A. Write only the letter (A–O) next to the question number (4.1.1–4.1.12) in the ANSWER BOOK.

COLUMN A		COLUMN B	
4.1.1	Surgical procedure that causes males to become sterile	A	ovaries
4.1.2	The gland situated in the pelvic area below the bladder that surrounds the male urethra	B	prostate
4.1.3	Maturation of the sperm occurs in the …	C	phrenic
4.1.4	Sperm production begins in the …	D	pap smear
4.1.5	Mature ova are released from the ovaries during …	E	vasectomy
4.1.6	Fertilisation of the ovum occurs in the …	F	oogenesis
4.1.7	An examination to detect early signs of cervical cancer	G	epididymis
4.1.8	Place where female sex hormones are produced	H	secretion
4.1.9	Production of ovum	I	ovulation
4.1.10	Production of sperm	J	spermatogenesis
4.1.11	Elimination of waste products from the body	K	fallopian tube
4.1.12	Nerve that controls the diaphragm	L	testes
		M	excretion
		N	hysterectomy
		O	fimbria

(12 × 1) (12)

4.2 4.2.1 Which endocrine organ that lies in the curve of the duodenum behind the stomach. (1)

4.2.2 Give TWO hormones that are secreted from the organ mentioned in QUESTION 4.2.1 and give the function of each. (2 × 2) (4)

4.2.3 What are the TWO systems that the organ mentioned in QUESTION 4.2.1 work with? (2)

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4.3 Explain the meaning of the following terms in relation to the attachment theory of Bowlby:

4.3.1 Attachment

4.3.2 Separation anxiety

4.3.3 Proximity

4.3.4 Secure base

(4 × 1) (4)

4.4 Explain how each child stage below manifests according to Jean Piaget's theory of cognitive development:

4.4.1 Sensory-motor stage

4.4.2 Pre-operational stage

4.4.3 Concrete operations

4.4.4 Formal operations

(4 × 1) (4)

4.5 Differentiate between *operant* and *respondent* behaviour. (2)

4.6 4.6.1 Who introduced the stages of moral development? (1)

4.6.2 Read the following information referring to the theorist mentioned in QUESTION 4.6.1 and identify the stage (numbered 1–4) according to the theory.

1. Rules are obeyed to avoid punishment. Children follow rules because they are told to do so.
   Morality is internal as norms and principles are imposed by authority figures.

2. Rules are obeyed for personal gain. The person looks at how to obtain a reward rather than avoiding punishment.
   There is a limited interest in the needs of others.

3. Rules are obeyed for approval. The aim is to win the approval of other people by behaving as 'good boys/girls.
   They are interested to win the approval of others by acting as good members of society. They accept the rules of their group and look at society's norms for moral guidance.

4. Rules are obeyed to benefit society. People are concerned with society. One cannot just do what one thinks is right if it conflicts with what the system requires.
   Laws exist to maintain order in society and to promote the good of all people. (4)

4.7 The study of anatomy is important for the training of students in medical sciences where cadavers (bodies of deceased people) are needed.

Where are these bodies acquired? (2)

4.8 Thousands of people die every year waiting for an organ transplant. The incidence of the sale of organs (organ harvesting/trafficking) is rising worldwide.

Give your opinion about organ trafficking in South Africa. (4)
[40]

QUESTION 5

5.1 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (5.1.1–5.1.8) in the ANSWER BOOK.

5.1.1 The diaphragm contracts when you exhale.

5.1.2 The appendix is attached to the small intestine.

5.1.3 The gastrocnemius muscle is found in the upper leg.

5.1.4 The small intestine is a long thick tube about 1,5 m long.

5.1.5 The renal cortex is the strong inner layer of the kidney.

5.1.6 Cartilage does not contain blood vessels.

5.1.7 The hypodermis consists of adipose tissue.

5.1.8 Smooth muscle is found in the brain.

(8 × 1) (8)

5.2 Study FIGURE 12 below which shows the motor division of the periphral nervous system and answer the questions that follow.



[Source: *emedicine.medscape.com*]

FIGURE 12

5.2.1 Identify TWO divisions that are portrayed in FIGURE 12. (2)

5.2.2 Differentiate between the two divisions mentioned in QUESTION 5.2.1 with examples. (4)

5.3 The pancreas plays an important role in the human body. Negative consequences may result if it is not functioning optimally.

How does drinking alcohol affect your pancreas? (4)

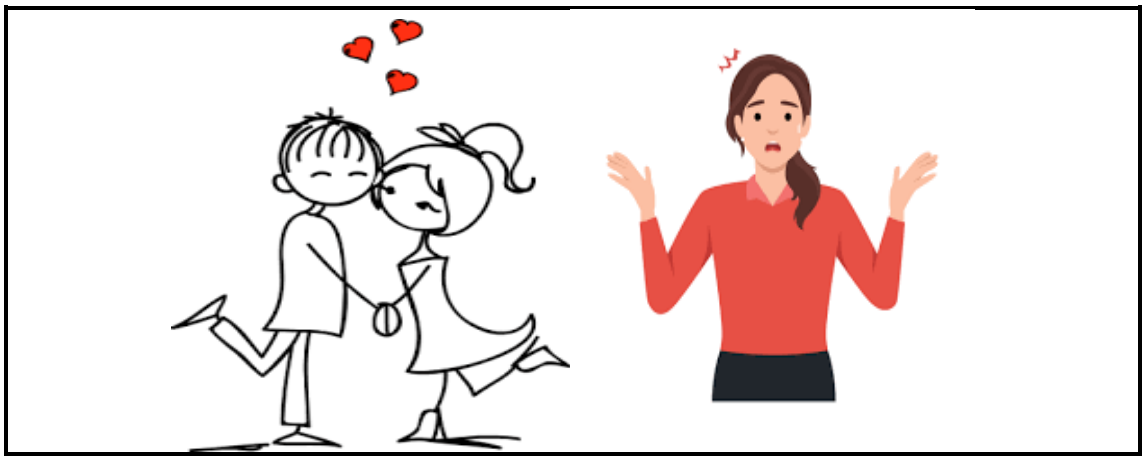
5.4 Name and explain THREE types of perception. (3 × 2) (6)

5.5 Study the diagrams in FIGURE 13, 14, 15, 16 and 17 and identify the life stage according to Erik Erikson's theory on psychosocial stages of development. Write only the answer next to the figure number (FIGURE 13−FIGURE 17) in the ANSWER BOOK.



[Source: *www.za.pinterest.com*]

FIGURE 13



[Source: *www.vecteezy.co*]

FIGURE 14



FIGURE 15



[Source*: www.freepik.com/ elderly-man*]

FIGURE 16

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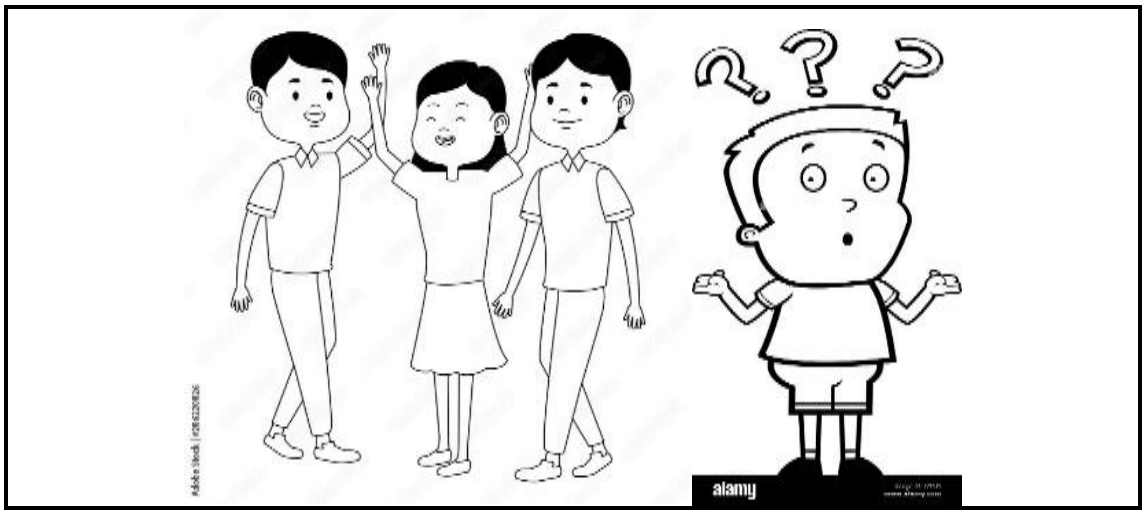

FIGURE 17

(5 × 2) (10)

5.6 There has been substantial growth in the use of social media as a communication method in recent years. It has given us an open door to more information than ever before. There are good and bad effects of our use of technology.



FIGURE 18

Give positive or negative aspects of social media as part of recent communication method. (4)

5.7 As a student who studies The Human Body and Mind, you have studied anatomy and physiology.

How will this knowledge be applicable in your future? (2)

[40]

TOTAL: 200

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