

GRADE 12

LIFE SCIENCES P1

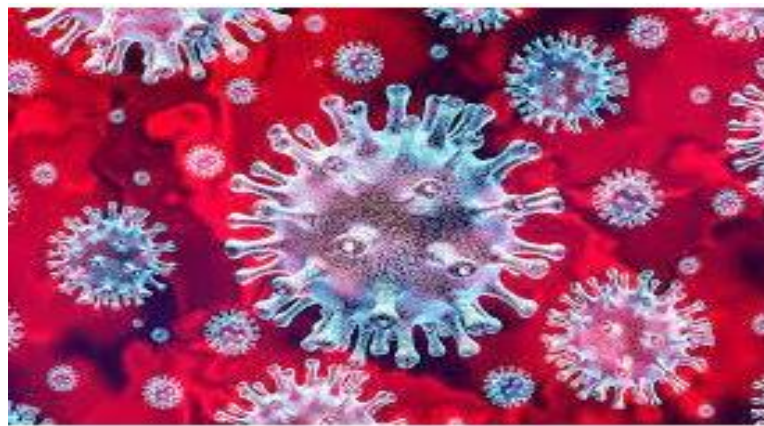
FINAL EXAM



LAST PUSH

Mopani West District

Rakwadu 2 Circuit



LIFE SCIENCES P1 GRADE 12 FINAL EXAM LAST PUSH

PAPER 1 (150 MARKS)

NO	TOPIC	MARKS
1	REPRODUCTION INVERTEBRATES	8
2	HUMAN REPRODUCTION	41
3	HUMAN RESPONSE TO THE ENVIRONMENT	54
4	PLANT RESPONSE TO THE ENVIRONMENT	13
5	ENDOCRINE & HOMEOSTASIS	34

BIOLOGICAL TERMS

MAY/JUNE 22

- 1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question numbers (1.2.1 to 1.2.10) in the ANSWER BOOK.
- 1.2.1 A structure in the ear that absorbs excess pressure waves from the inner ear
- 1.2.2 The structure in a sperm that contains enzymes
- 1.2.3 The site of fertilisation in the human female
- 1.2.4 A visual defect caused by the uneven curvature of the cornea
- 1.2.5 The nerve that transmits impulses from the eye to the brain
- 1.2.6 A disease characterised by the degeneration of brain cells and memory loss
- 1.2.7 The inner layer of the uterus that thickens during the menstrual cycle
- 1.2.8 A hollow ball of cells that forms during embryonic development
- 1.2.9 The period of development of secondary sexual characteristics in humans
- 1.2.10 The type of vision where both eyes are used to focus on an object
(10 x 1) **(10)**

NW SEPT 24

- 1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question numbers (1.2.1 to 1.2.7) in the ANSWER BOOK.
- 1.2.1 The ability of the lens of the eye to alter its shape for sharp vision
 - 1.2.2 A disease caused by damage to the myelin sheath of the neurons, characterised by physical and mental disabilities
 - 1.2.3 The maintenance of a constant internal environment in the human body
 - 1.2.4 The glands that pour their secretions directly into the bloodstream
 - 1.2.5 Control of the level of water in the body
 - 1.2.6 The hormone responsible for stimulating milk production
 - 1.2.7 A decrease in the internal diameter of blood vessels which decreases blood flow (7 x 1) (7)

MP SEPT 24

- 1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question number (1.2.1 to 1.2.10) in the ANSWER BOOK.
- 1.2.1 The blood vessel that transports deoxygenated blood from the foetus towards the placenta
 - 1.2.2 A structure in the female reproductive system where semen is deposited during copulation.
 - 1.2.3 The liquid that protects the embryo against mechanical injury and dehydration.
 - 1.2.4 The part of the nervous system outside the brain and spinal cord
 - 1.2.5 A plant hormone that causes leaves to fall off trees in autumn.
 - 1.2.6 The hormone that controls the concentration of water in the blood.
 - 1.2.7 Neurons that carry impulses from receptors.

- 1.2.8 The structure, within the cochlea, responsible for the conversion of a sound stimulus into an impulse.
- 1.2.9 The maintenance of a constant internal environment in the body within certain limits.
- 1.2.10 Defect of the eye due to a clouding of the eye's normal, clear, transparent lens, affecting acuity of vision.

(10 x 1) (10)

KZN SEPT 24

- 1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question number (1.2.1 to 1.2.8) in the ANSWER BOOK.

- 1.2.1 The growth of plants in response to light
- 1.2.2 The structure that serves as a micro-filter during pregnancy
- 1.2.3 The duct that transports semen and urine to the outside of the body
- 1.2.4 A reproductive strategy where the young receives nutrients through the placenta
- 1.2.5 The type of egg produced by reptiles that has extra-embryonic membranes
- 1.2.6 A chemical containing plant hormones used to kill unwanted plants
- 1.2.7 Receptors that provide information about the position of the head
- 1.2.8 Part of a sperm cell that contains an enzyme to break down the cell membrane of an ovum

(8 x 1) (8)

GP SEPT 24

1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question numbers (1.2.1 to 1.2.6) in the ANSWER BOOK.

1.2.1 Sharp structures found in plants for protection from herbivores

1.2.2 Type of vision that results from having two eyes

1.2.3 A hormone produced by the pituitary gland that stimulates milk production in human females

1.2.4 A condition where the cornea is uneven, resulting in blurry vision

1.2.5 The response of stems towards a light stimulus

1.2.6 A hollow ball of cells formed from the zygote (6 x 1) (6)

EC SEPT 24

1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question numbers (1.2.1 to 1.2.9) in the ANSWER BOOK.

1.2.1 Responsible for detecting a stimulus and generating an impulse

1.2.2 Extra-embryonic membrane that allows for gaseous exchange in the amniotic egg

1.2.3 A gland or muscle that brings about a response to stimuli

1.2.4 Widening of blood vessels to increase blood flow

1.2.5 The type of lens required to correct short-sightedness

1.2.6 Glands found exclusively in mammals that under the influence of prolactin secrete milk

1.2.7 The layer of the eye which contains photoreceptors

1.2.8 The location of the osmoreceptors in the body

1.2.9 The microscopic gap between two neurons allowing impulses to be transmitted from one to the next

(9 x 1) (9)

NSC NOV 23

- 1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question numbers (1.2.1 to 1.2.8) in the ANSWER BOOK.
- 1.2.1 A reproductive strategy where the young receives nutrients through the placenta
- 1.2.2 The duct that transports semen and urine to the outside of the body
- 1.2.3 The part of the nervous system that consists of cranial and spinal nerves
- 1.2.4 The form in which excess glucose is stored in the liver
- 1.2.5 The structure that serves as a micro-filter during pregnancy
- 1.2.6 The pigmented layer of the eye that absorbs excess light
- 1.2.7 The part of a neuron that plays a role in the speed at which a nerve impulse is transmitted
- 1.2.8 The part of the male reproductive system which temporarily stores sperm until they mature (8 x 1) **(8)**

MATCH COLUMN

MAY/JUNE 22

- 1.3 Indicate whether each of the descriptions in COLUMN I apply to **A ONLY**, **B ONLY**, **BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only**, **B only**, **both A and B** or **none** next to the question numbers (1.3.1 to 1.3.3) in the ANSWER BOOK.

COLUMN I		COLUMN II	
1.3.1	The plant hormone that stimulates the germination of seeds	A:	Gibberellins
		B:	Abscisic acid
1.3.2	The part of the brain that connects the left and the right hemispheres	A:	Corpus luteum
		B:	Corpus callosum
1.3.3	The liquid found in front of the lens in the eye	A:	Vitreous humor
		B:	Aqueous humor

(3 x 2) **(6)**

NW SEPT 24

- 1.3 Indicate whether each of the descriptions in COLUMN I apply to **A ONLY**, **B ONLY**, **BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only**, **B only**, **both A and B** or **none**, next to the question numbers (1.3.1 to 1.3.3) in the ANSWER BOOK.

COLUMN I		COLUMN II	
1.3.1	The ability to see objects close by, but not objects far away	A:	Long-sightedness
		B:	Short-sightedness
1.3.2	The area in the retina that contains the highest number of cones and no rods	A:	Blind spot
		B:	Yellow spot
1.3.3	A neuron that links one neuron with the next inside the central nervous system	A:	Sensory neuron
		B:	Motor neuron

(3 x 2)

(6)

GP SEPT 24

- 1.3 Indicate whether each of the descriptions in COLUMN I applies to **A ONLY**, **B ONLY**, **BOTH A and B** or **NONE** of the items in COLUMN II. Write **A only**, **B only**, **A and B** or **none** next to the question numbers (1.3.1 to 1.3.3) in the ANSWER BOOK.

COLUMN I		COLUMN II	
1.3.1	The hormone that is in excess in an abnormally tall person	A:	Lutenising hormone
		B:	Growth hormone
1.3.2	Corrective lenses for long-sightedness	A:	Convex
		B:	Concave
1.3.3	A disease of the CNS	A:	Multiple sclerosis
		B:	Alzheimer's disease

(3 x 2)

(6)

MP SEPT 24

- 1.3 Indicate whether each of the statements in COLUMN I applies to **A ONLY, B ONLY, BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only, B only, both A and B** or **none** next to the question number (1.3.1 to 1.3.4) in the ANSWER BOOK.

COLUMN I	COLUMN II
1.3.1 The tough, non-elastic tissue covering the outer portion of the eye ball	A: conjunctiva B: choroid
1.3.2 The disease characterised by the degeneration of brain tissue, leading to memory loss	A: Alzheimer's disease B: Multiple sclerosis
1.3.3 The period during which the embryo develops within the uterus of the mother up to the time the baby is born.	A: Pregnancy B: Gestation
1.3.4 Plant defence mechanism	A: Chemicals B: Thorns

(4 x 2) (8)

KZN SEPT 24

- 1.3 Indicate whether each of the descriptions in COLUMN I applies to **A ONLY, B ONLY, BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only, B only, both A and B** or **none** next to the question number (1.3.1 to 1.3.3) in the ANSWER BOOK.

COLUMN I	COLUMN II
1.3.1 Results in the elongation of internodes.	A: Auxins B: Gibberellins
1.3.2 The development in vertebrates where the young cannot move soon after being born	A: Altricial development B: Precocial development
1.3.3 A symptom of multiple sclerosis	A: Memory loss B: Difficulty walking

(3 x 2) (6)

EC SEPT 24

- 1.3 Indicate whether each of the descriptions in COLUMN I applies to **A ONLY**, **B ONLY**, **BOTH A AND B**, or **NONE** of the items in COLUMN II. Write **A only**, **B only**, **BOTH A and B**, or **NONE** next to the question numbers (1.3.1 to 1.3.4) in the ANSWER BOOK.

COLUMN I	COLUMN II
1.3.1 Role(s) of the placenta	A: Maintenance of pregnancy B: Protects the foetus against mechanical injury
1.3.2 Functions of abscisic acid in plants	A: To promote flowering B: To enable root development
1.3.3 Hormone(s) responsible for osmoregulation	A: Aldosterone B: Anti-diuretic hormone
1.3.4 The loss of memory due to degeneration of nerve tissue	A: Alzheimer's disease B: Multiple sclerosis

(4 x 2) (8)

NSC NOV 23

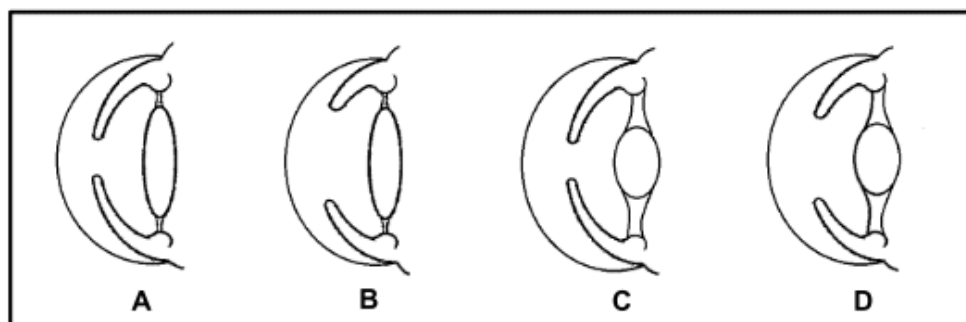
- 1.3 Indicate whether each of the descriptions in COLUMN I apply to **A ONLY**, **B ONLY**, **BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only**, **B only**, **both A and B** or **none** next to the question numbers (1.3.1 to 1.3.3) in the ANSWER BOOK.

COLUMN I	COLUMN II
1.3.1 A process that produces four mature gametes in humans from a single diploid cell	A: Oogenesis B: Spermatogenesis
1.3.2 A defence mechanism that protects plants against herbivores	A: Thorns B: Chemicals
1.3.3 The nerve that transmits impulses from the retina to the brain	A: Optic nerve B: Auditory nerve

(3 x 2) (6)

THE EYE (MAY/JUNE 22)

1.4 The diagrams below show part of the eye under different conditions.



1.4.1 Name the process that occurs when the:

- (a) Curvature of the lens changes to focus on a near or distant object (1)
- (b) Pupil size changes to regulate the amount of light entering the eye (1)

1.4.2 Give the LETTERS of TWO diagrams (**A**, **B**, **C** or **D**) that represent the condition of the eye of a person:

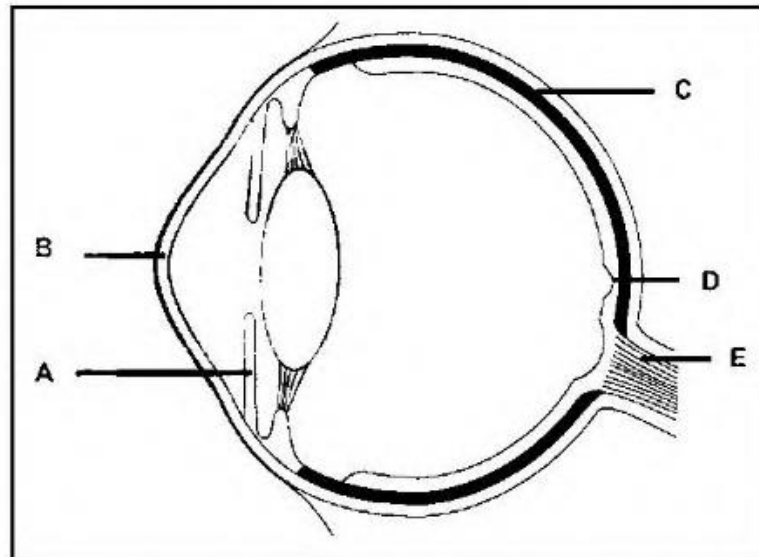
- (a) In dim light (2)
- (b) Focusing on a distant object (2)

1.4.3 Give the LETTERS of TWO diagrams (**A**, **B**, **C** or **D**) that represent the eye of a person whose:

- (a) Ciliary muscles are contracted (2)
 - (b) Radial muscles are relaxed (2)
- (10)**

THE EYE (NW SEPT 24)

2.1 The diagram below represents the internal structure of the human eye.



2.1.1 Identify and give ONE function for each of the following structures:

(a) **A** (2)

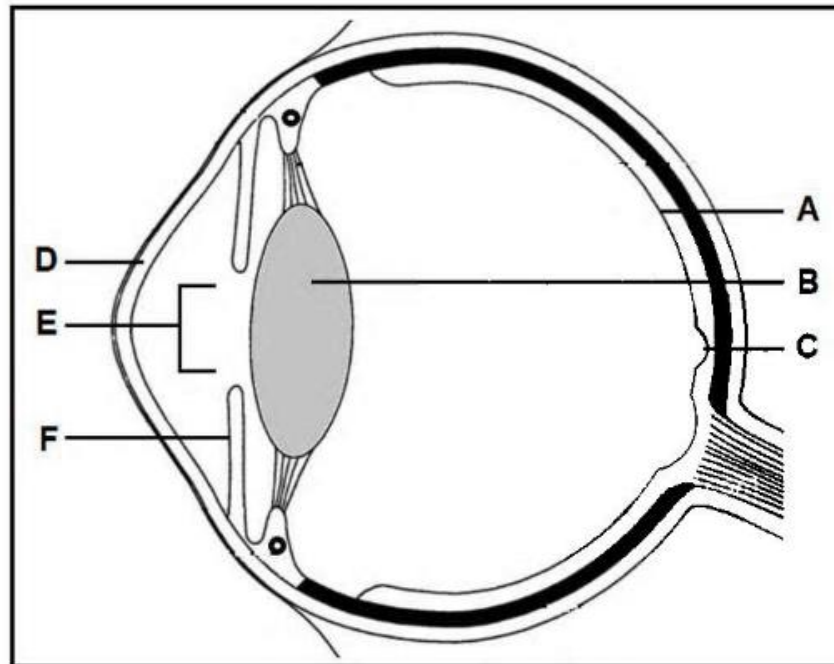
(b) **E** (2)

2.1.2 What treatment is prescribed if part **B** has an uneven surface? (1)

2.1.3 Describe the pupillary mechanism when eyes are exposed to bright light. (4)
(9)

MP SEPT 24

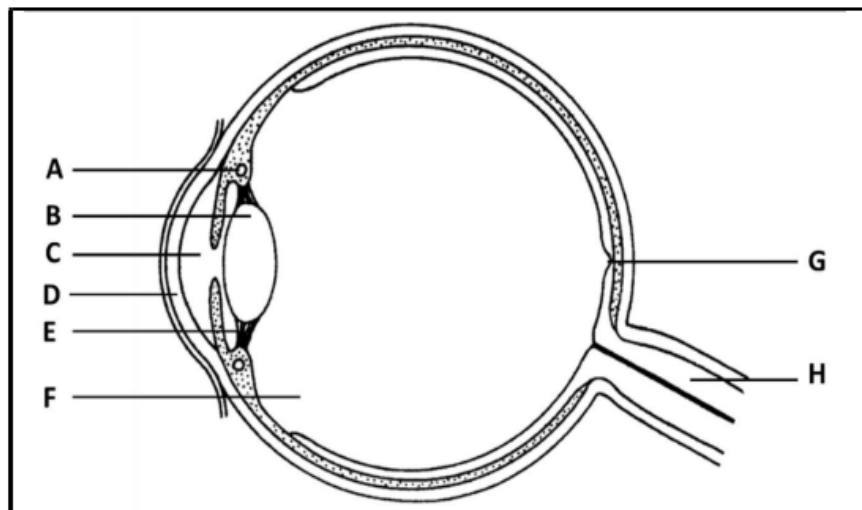
3.2 The diagram below shows a section of a human eye.



- 3.2.1 Give the LETTER and the NAME of the region where the clearest image is formed. (2)
- 3.2.2 Using the LETTER and NAME, give the correct sequence through which light travels until it reaches part C. (3)
- 3.2.3 Name and describe the changes that occur in the structures labelled E, and F when watching a movie in the cinema. (7)
- (12)

GP SEPT 24

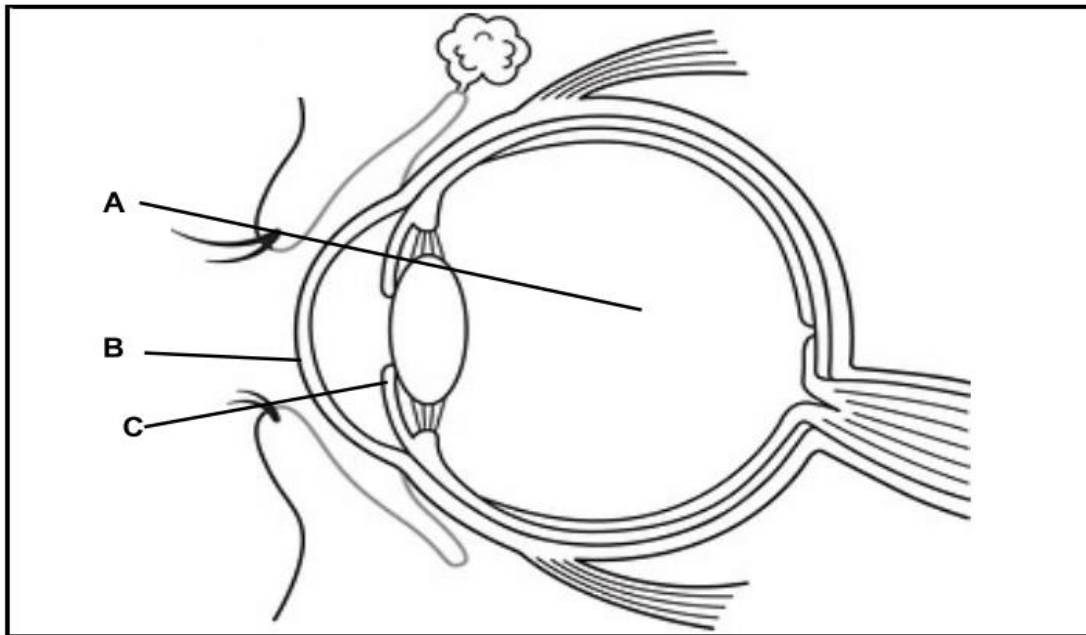
2.4 The diagram below shows a longitudinal section through a human eye.



- 2.4.2 Explain ONE feature shared by parts **B** and **D** that makes them suited to the function for clear vision. (2)
- 2.4.3 Discuss how parts **G** and **H** work together for vision to occur. (4)
- 2.4.4 Tabulate TWO structural differences between a healthy eye when looking at an object closer than 6 m away and when looking at an object further than 6 m away. (5)

EC SEPT 24

2.3 The diagram below shows a cross section of the eye.



2.3.1 Give the NAME and ONE FUNCTION of the each of the following parts:

(a) **A** (2)

(b) **B** (2)

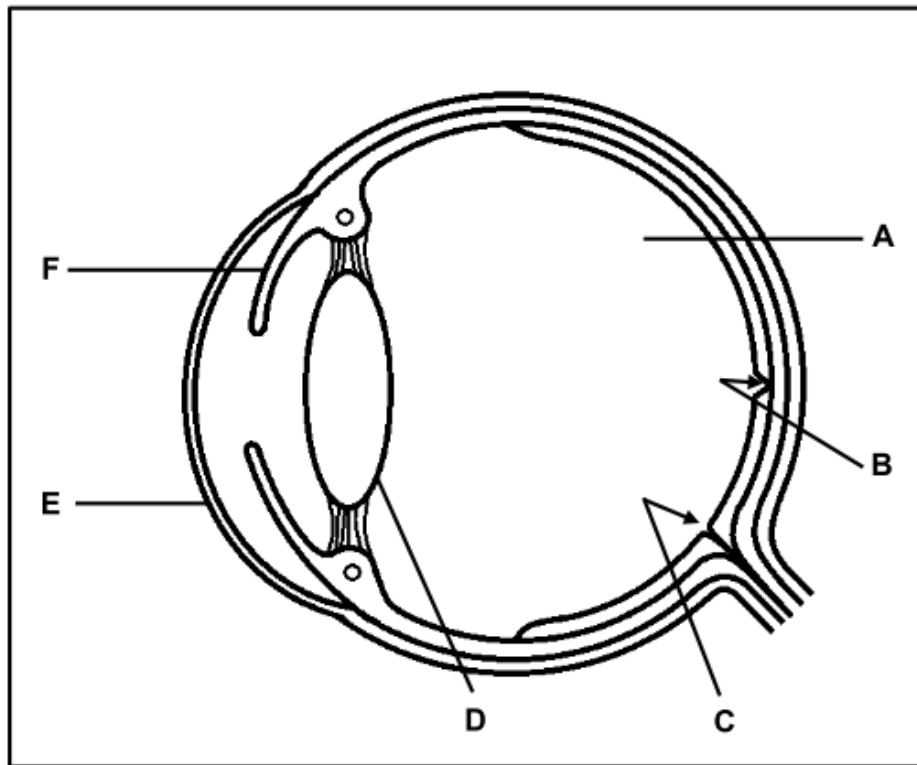
2.3.2 Polycoria is a disease that affects part **C**. A person suffering from this disease has more than one pupil. Each pupil has its own set of circular muscles.

Briefly discuss how this disease will affect vision. (3)

2.3.3 Describe the changes that occur in the eye when a person focuses on an object that is three metres away. (5)

MAY/JUNE 23

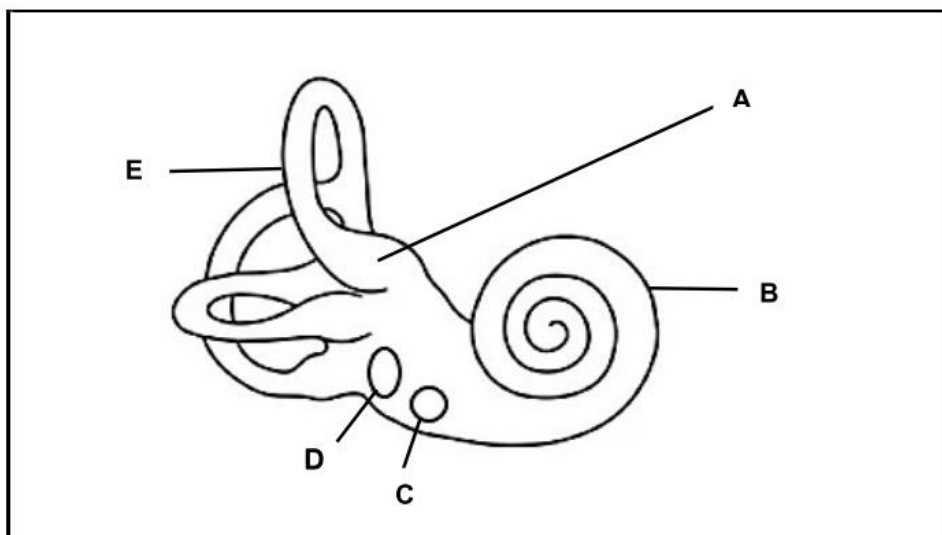
3.5 The diagram below represents the human eye.



- 3.5.1 Identify structure **F**. (1)
- 3.5.2 State TWO functions of fluid **A**. (2)
- 3.5.3 Describe the structural difference between area **B** and area **C**. (2)
- 3.5.4 Name the visual defect that occurs when the curvature of part **E** is uneven. (1)
- 3.5.5 Explain how the sight of a person will be affected if cataracts developed in part **D**. (3)
- 3.5.6 Describe the process of accommodation that takes place when an object is less than 6 metres away from the eye. (6)

EC SEPT 24

2.4 The diagram below shows the structure of the inner ear.



2.4.1 Give the LETTER and NAME of the part that:

- (a) Collects vibrations from ossicles and converts them into pressure waves (2)
- (b) Contains the organ of Corti (2)

2.4.2 Top ice-figure skaters can spin up to six revolutions on their body's axis per second.

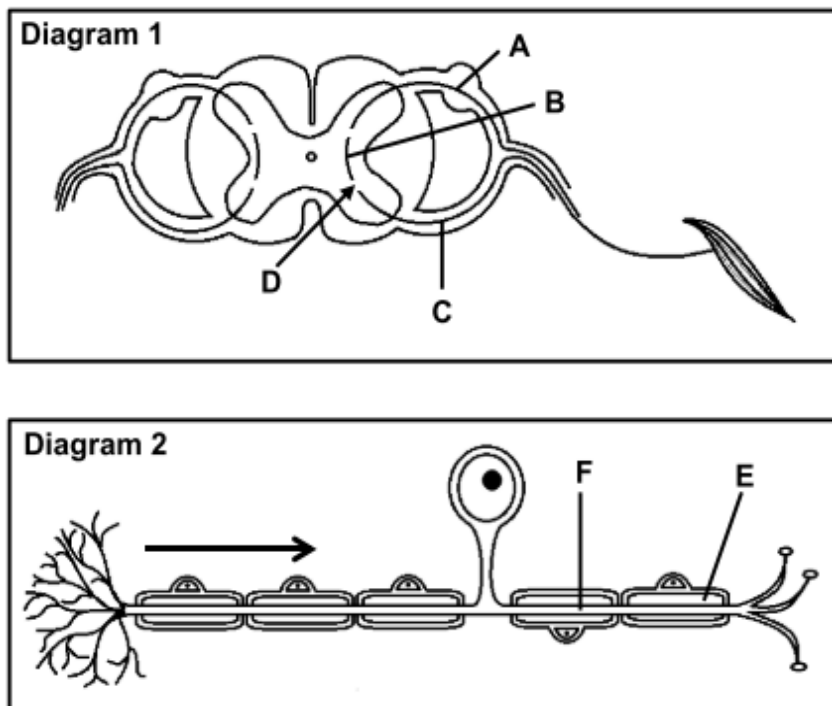


Describe the role of part **A** in the maintenance of balance of their body while spinning. (4)

2.4.3 Describe ONE structural suitability of part **B** to perform its function. (2)

REFLEX ARC & NEURONS (MAY/JUNE 22)

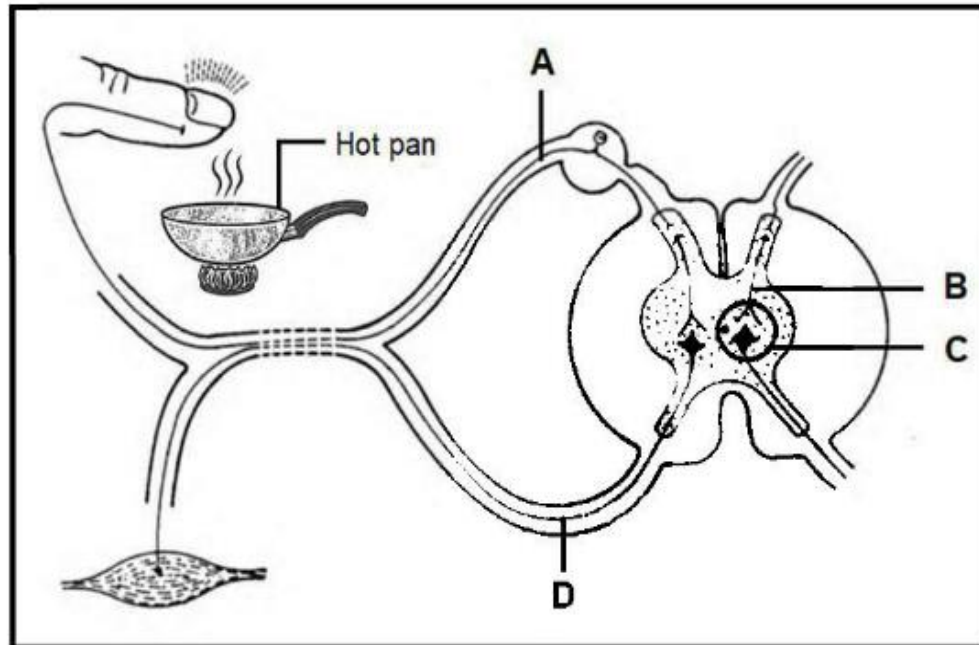
- 1.5 Diagram 1 below represents part of a reflex arc and diagram 2 represents a neuron.



- 1.5.1 Identify:
- (a) Layer **E** (1)
 - (b) Structure **F** (1)
- 1.5.2 Which neuron (**A**, **B** or **C**):
- (a) Represents the type of neuron shown in diagram 2 (1)
 - (b) Is damaged when a person can feel the stimulus but cannot respond to it (1)
- 1.5.3 Give the LETTER and NAME of the part that ensures one-directional flow of the impulse. (2)
- (6)**

MP SEPT 24

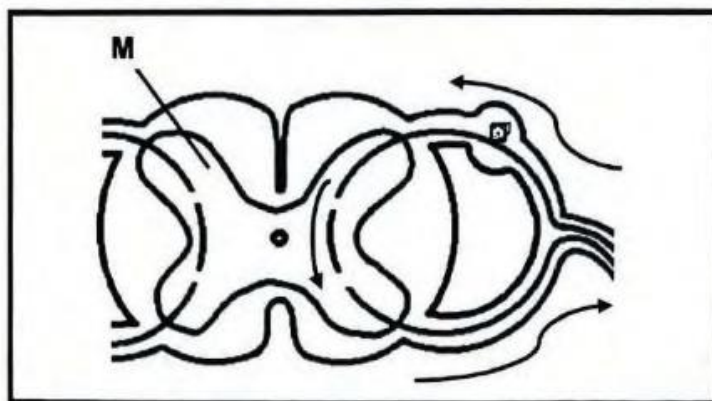
3.4 The diagram below represents a reflex arc.



- 3.4.1 Define a *reflex arc* (1)
- 3.4.2 Identify the:
- (a) Functional connection at **C** (1)
 - (b) Type of neuron at **B** (1)
- 3.4.3 State TWO significance of the connection mentioned in QUESTION 2.3.2(a). (2)
- 3.4.4 Name the neurons as they occur, in the correct sequence, from receptor to effector. (2)
- 3.4.5 Explain the consequences of a reflex action if neuron **D** is damaged. (2)
- 3.4.6 Draw a labelled diagram to represent the structure of neuron **A**. (5)
- (14)**

KZN SEPT 24

2.4 The diagram below shows part of a spinal cord.

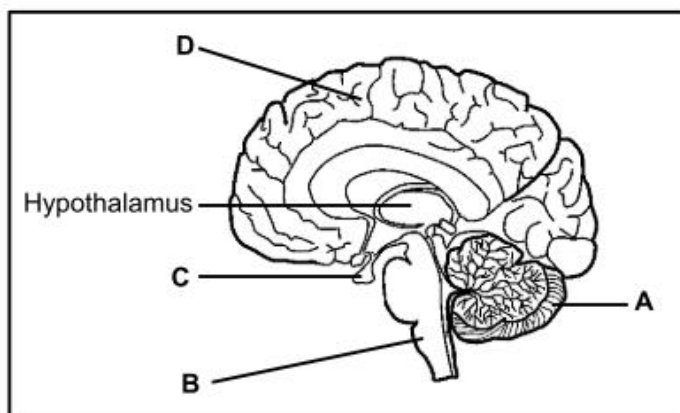


2.4.1 Identify region **M** on the diagram. (1)

2.4.2 Describe the pathway of impulses in a reflex-arc as shown by the arrows on the diagram. (5)
(6)

THE BRAIN (MAY/JUNE 22)

2.1 The diagram below shows part of the human brain.



2.1.1 Identify part **A**. (1)

2.1.2 State TWO functions of part **D**. (2)

2.1.3 Name the hormone secreted by gland **C** that has an effect on:

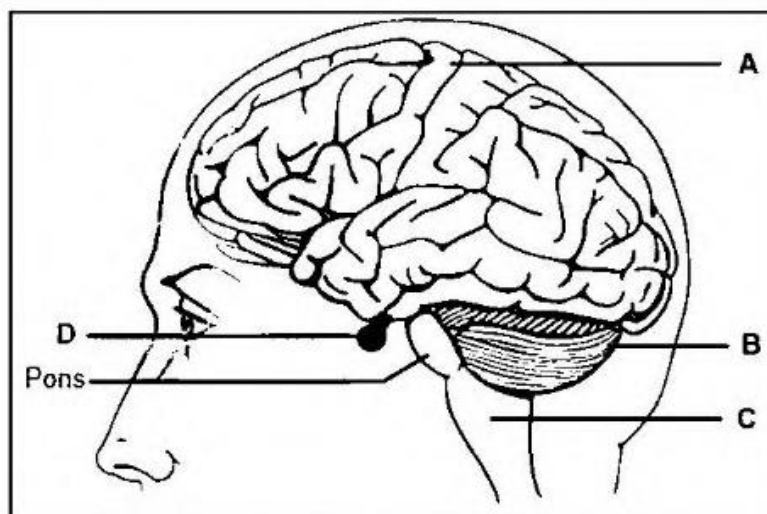
(a) Long bones (1)

(b) Mammary glands in the breasts (1)

- 2.1.4 State ONE way in which the brain is protected. (1)
- 2.1.5 Describe the role of the hypothalamus in thermoregulation. (4)
- 2.1.6 Part **B** is involved in the homeostatic control of the carbon dioxide concentration in the blood.
- (a) State the location of the receptors that are stimulated by an increase in the carbon dioxide concentration in the blood. (1)
- (b) Name the TWO effectors that part **B** sends impulses to. (2)
- (13)

NW SEPT 24

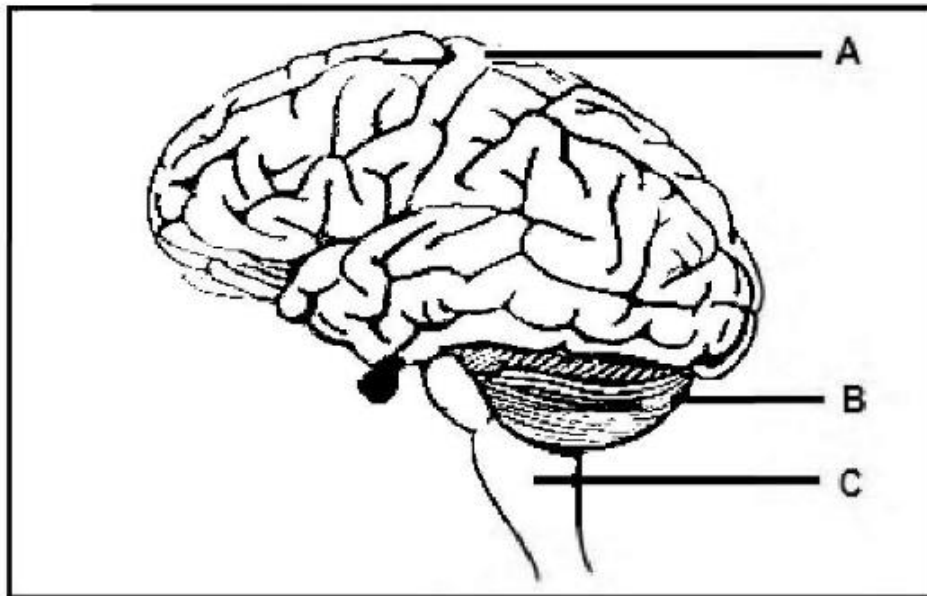
- 3.2 The diagram below represents the human brain.



- 3.2.1 Identify the part labelled **B** and give its function. (2)
- 3.2.2 Identify the part of the brain that receives impulses from the optic nerve. (1)
- 3.2.3 Name part **C**. (1)
- 3.2.4 Describe how balance and equilibrium are maintained by the ear when a person changes their speed and direction of movement. (6)
- (10)

MP SEPT 24

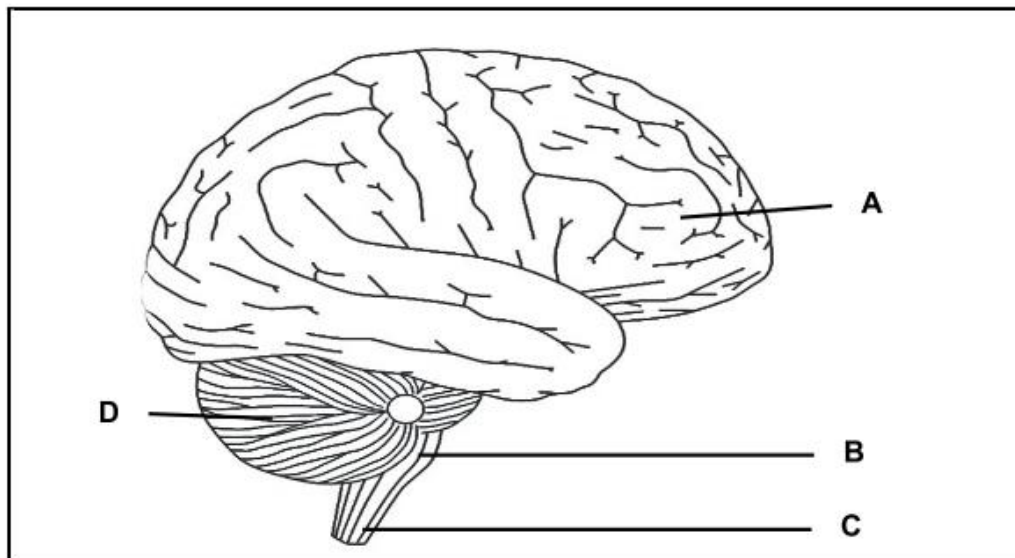
1.5 The diagram below represents parts of a human brain



- 1.5.1 Give the LETTER and the NAME of the part that coordinates voluntary movement. (2)
- 1.5.2 State TWO functions of part B. (2)
- 1.5.3 Give two involuntary actions that are controlled by part C. (2)

EC SEPT 24

1.4 The diagram below depicts parts of the central nervous system.



1.4.1 State the LETTER and NAME of the part most likely affected if a person experiences the following after an injury:

- (a) Inability to write smoothly (2)
- (b) Slurred speech (2)
- (c) Irregular breathing and heart rate (2)

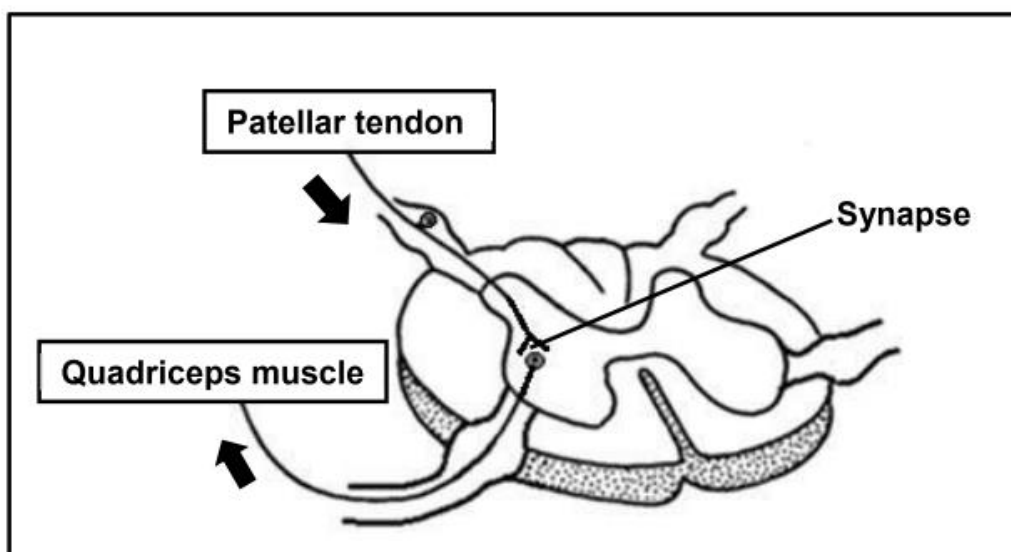
1.4.2 Explain TWO ways part **C** is protected against injury. (4)

1.5 Draw a fully labelled diagram of a sensory neuron. (5)

NSC NOV 23

- 2.5 The efficiency and speed of the knee-jerk reaction is very important for balance and movement. The stimulation of the patellar tendon, just below the knee cap (patella), causes the contraction and relaxation of the quadriceps muscle in the upper leg.

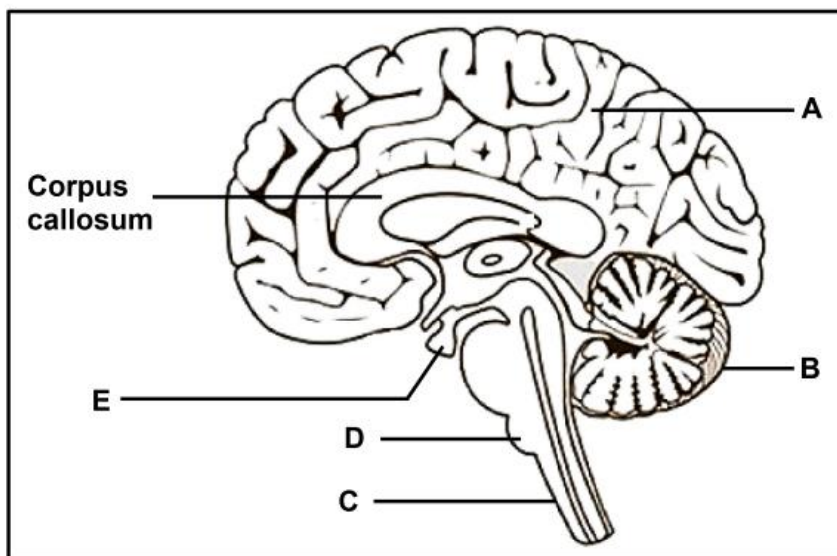
The diagram below represents the reflex arc for the knee-jerk reaction containing only ONE synapse. The arrows indicate the transmission of nerve impulses.



- 2.5.1 What is a *reflex action*? (2)
- 2.5.2 State:
- (a) ONE reason why a synapse is significant (1)
 - (b) The importance of the knee-jerk reaction (1)
- 2.5.3 Describe the pathway of the impulse in this reflex arc to bring about the knee-jerk reaction. (5)
- (9)**

NSC NOV 23

2.4 The diagram below represents part of the central nervous system of a human.



2.4.1 Identify:

- (a) Part **C** (1)
- (b) Gland **E** (1)

2.4.2 Give the LETTER of the part that controls voluntary actions. (1)

2.4.3 Describe the location of the corpus callosum. (2)

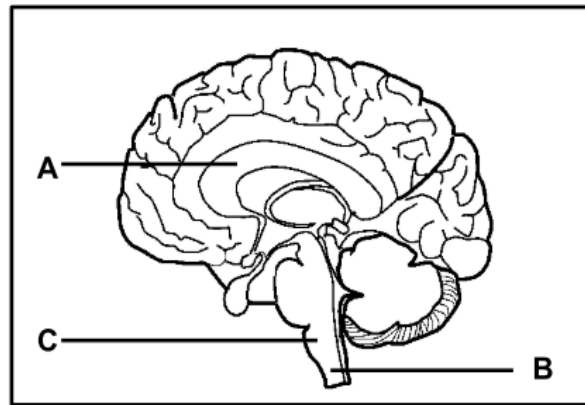
2.4.4 A learner suffered a brain injury during a rugby match. He could still breathe properly but he experienced occasional loss of memory and balance.

Explain why:

- (a) The learner could still breathe properly (2)
 - (b) It is possible that the injury affected part **B** (2)
 - (c) The hearing of the learner could also be affected because of the injury (2)
- (11)**

NSC NOV 22

3.1 The diagram below shows a part of the human brain.



3.1.1 Identify part **A**. (1)

3.1.2 Explain why a person may die if part **C** is damaged. (2)

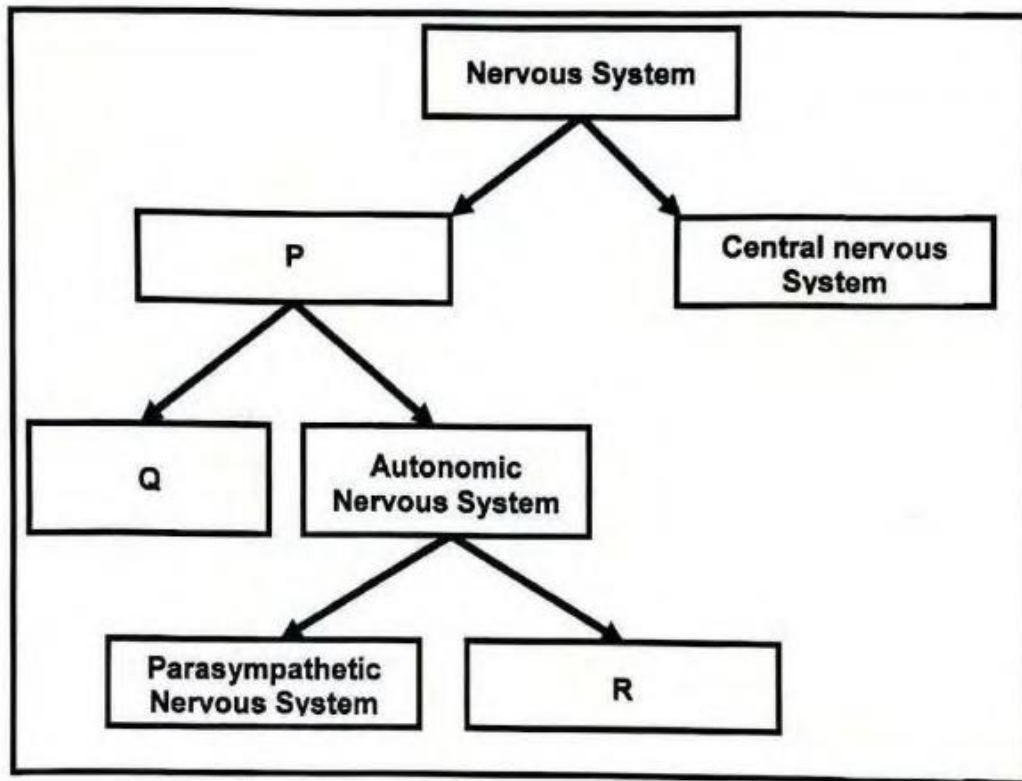
3.1.3 Part **B** is damaged in a person's lower back.

(a) Identify part **B**. (1)

(b) Explain why the person will have no control of the skeletal muscles of the legs. (2)
(6)

KZN SEPT 24

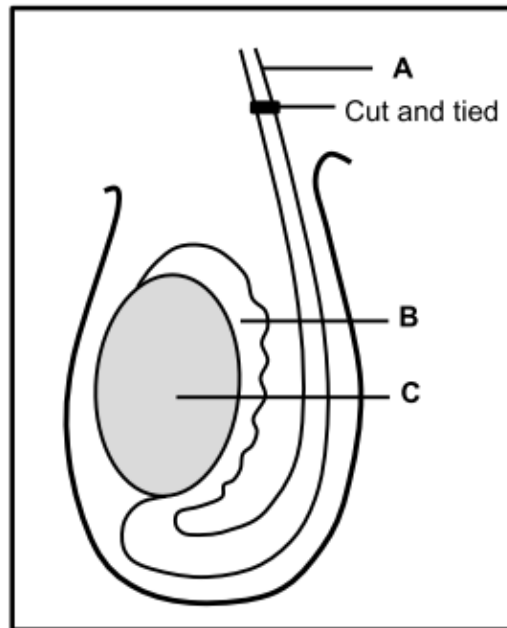
2.3 The flow diagram below is based on the human nervous system.



- 2.3.1 Identify branch **P** of the nervous system which is made up of all the nerves outside the central nervous system. (1)
- 2.3.2 Name TWO parts that make up the central nervous system. (2)
- 2.3.3 State ONE function of branch **Q** of the nervous system. (1)
- 2.3.4 Name the TWO groups of nerves that make up branch **P** of the nervous system. (2)
- 2.3.5 Describe the role of branch **R** of the nervous system when a person is chased by a dog. (5)

MALE REPRODUCTIVE SYSTEM (MAY/JUNE 22)

2.2 The diagram below shows part of the male reproductive system.

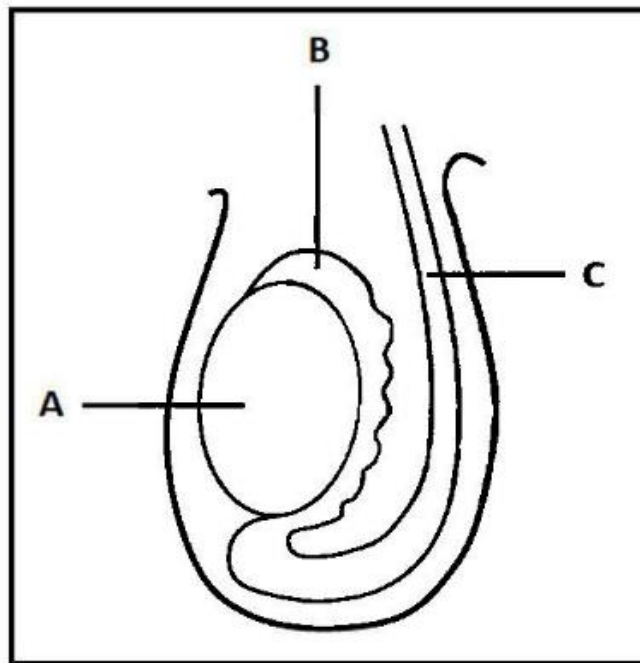


- 2.2.1 Identify part **A**. (1)
- 2.2.2 State ONE function of part **B**. (1)
- 2.2.3 During a vasectomy, part **A** is cut and tied as shown in the diagram. Semen will still be released during copulation.
- Explain the composition of the semen after a vasectomy. (3)
- 2.2.4 In some rare cases, males are born with part **C** located inside the body because it failed to descend into the scrotum.
- Explain how this condition may affect male fertility. (3)
- 2.2.5 Describe the process of spermatogenesis. (4)
- (12)

MP SEPT 24

QUESTION 2

2.1 Study the diagram and answer the questions below.



2.1.1 Identify parts **A**, **B** and **C** respectively. (3)

2.1.2 Describe the process of spermatogenesis in part **A**. (4)

2.1.3 Test results show that a man has a low sperm count.

Explain why a doctor would advise the man to wear underwear that is not tight. (2)

2.1.4 During a vasectomy the vas deferens from both testes is cut.

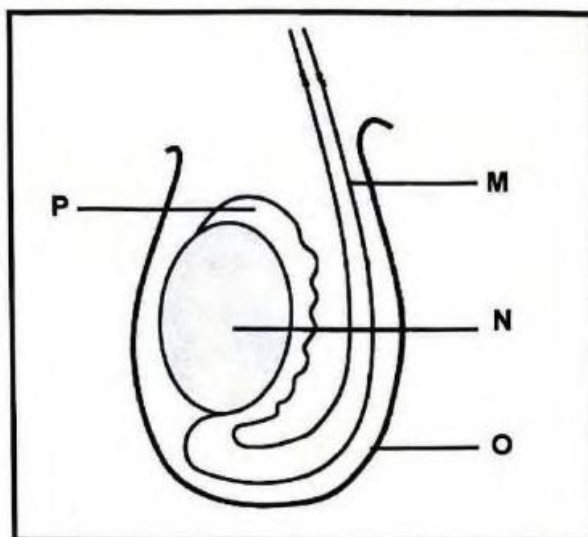
Explain ONE reason why a man who:

(a) Does not want to have children will choose to have a vasectomy (2)

(b) Has had a vasectomy is still capable of ejaculation (2)
(13)

KZN SEPT 24

1.4 The diagram below shows ONE human testis after a surgery.



1.4.1 Write down the LETTER and the NAME of the part that:

- | | | |
|-----|--|-----|
| (a) | Stores sperms temporarily | (2) |
| (b) | Transports sperms to the ejaculatory duct | (2) |
| (c) | Protects and holds part N "outside" the body | (2) |

1.4.2 State TWO functions of part N. (2)

(8)

KZN SEPT 24

2.2 Human males and females are adapted differently for reproduction.

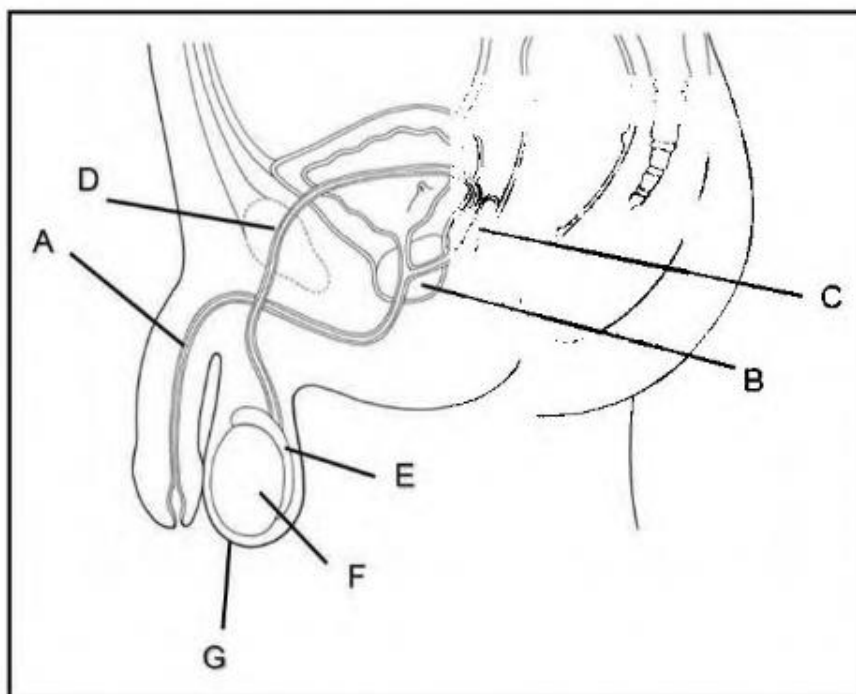
2.2.1 Name the hormone that stimulates secondary sexual characteristics in males. (1)

2.2.2 Describe how the location of testis is an adaptation for a successful production of gametes. (4)

(5)

NW SEPT 24

2.3 The diagram below represents a male reproductive system.



2.3.1 Identify part **A**. (1)

2.3.2 Give the NAME of the part responsible for the following:

(a) Produces sperms (1)

(b) Temporary storage of sperms (1)

(c) Transport of semen to the ejaculatory duct (1)

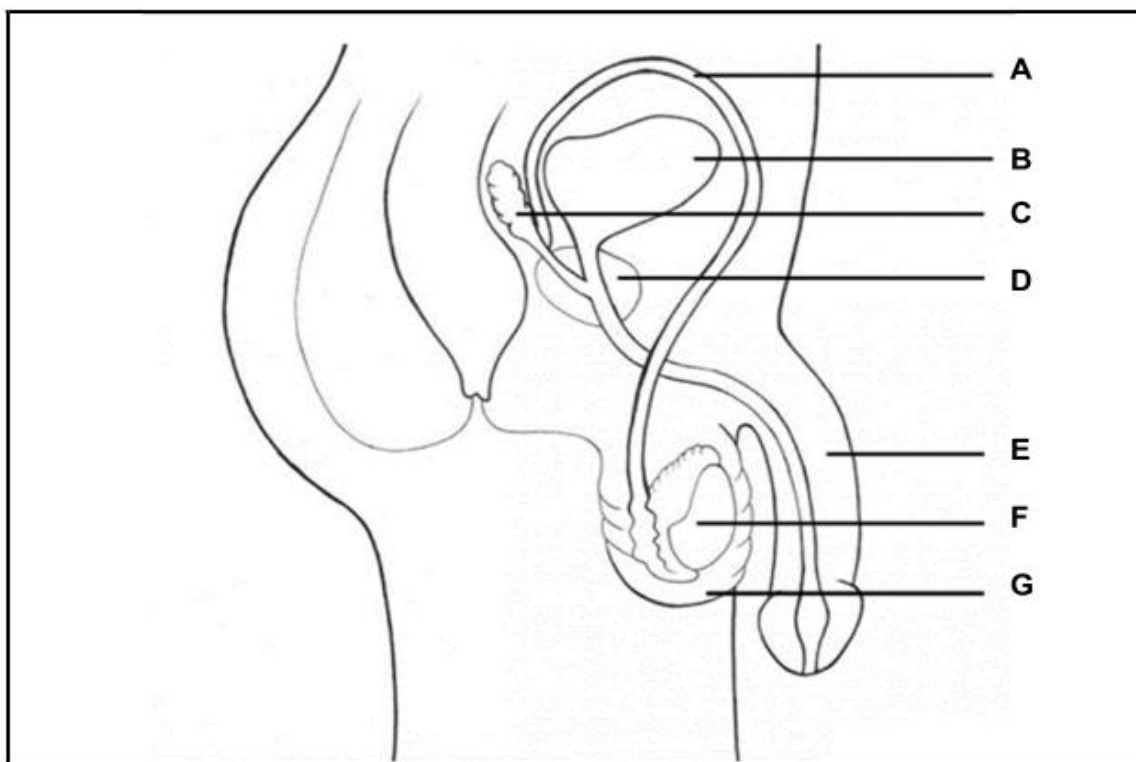
2.3.3 Explain the consequences on fertility if part **G** is exposed to high temperatures daily. (4)

2.3.4 Tabulate TWO differences between spermatogenesis and oogenesis in humans. (5)

2.3.5 Draw a labelled diagram to represent the structure that fuses with the sperm cell to form a zygote. (4)

GP SEPT 24

2.2 The diagram below represents the human male reproductive system.



2.2.1 Identify the parts labelled:

- (a) **A** (1)
(b) **E** (1)

2.2.2 Explain the function of structure **G**. (2)

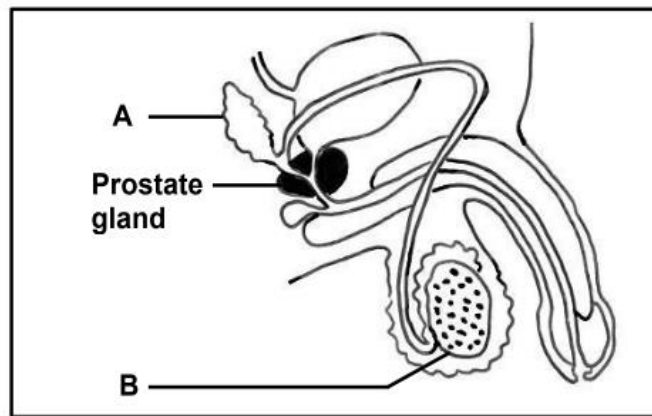
2.2.3 Name and describe the process by which gametes are produced in part **F**. (4)

2.2.4 Draw a diagram of a gamete produced in part **F**. (5)

2.2.5 Draw a flow diagram showing the pathway of sperm cells during ejaculation. (2)
(15)

NSC NOV 23

2.2 The diagram below represents the male reproductive system.



2.2.1 Name:

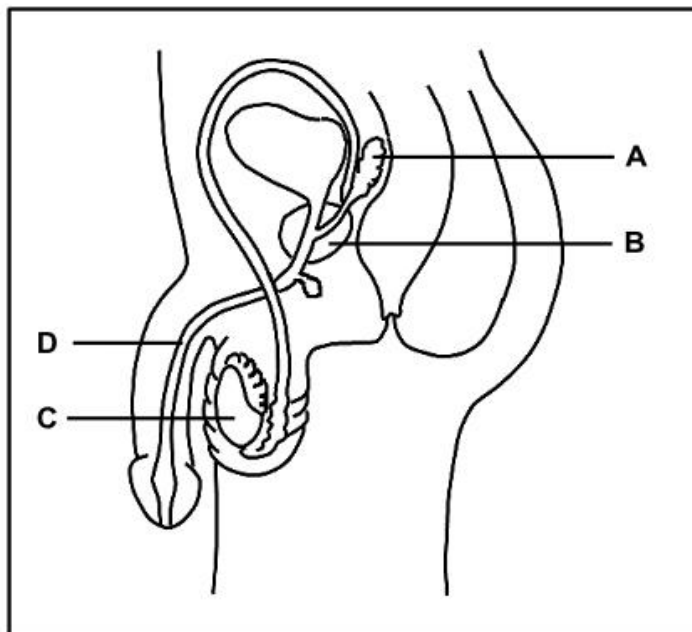
- (a) Part **A** (1)
- (b) The hormone secreted by **B** (1)

2.2.2 Explain ONE function of the fluid secreted by the prostate gland during reproduction. (2)

NSC NOV 22

QUESTION 2

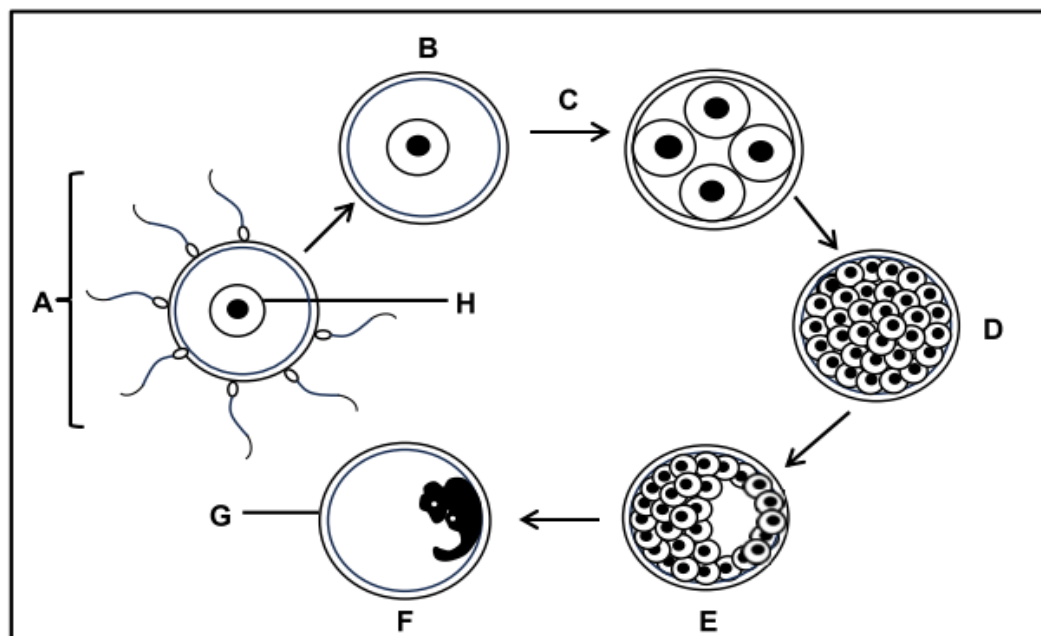
2.1 The diagram below represents the human male reproductive system.



- 2.1.1 Identify structure **A**. (1)
- 2.1.2 State ONE function of part **D** in reproduction. (1)
- 2.1.3 Give TWO reasons why structure **B** is NOT considered to be an endocrine gland. (2)
- 2.1.4 Name the type of gametogenesis that occurs in part **C**. (1)
- 2.1.5 Explain how the secretions of structures **A** and **B** improve the chances of fertilisation. (4)
- (9)

NSC NOV 23

- 1.5 The diagram below shows events that may take place inside a human female body.



- 1.5.1 Identify structure:

- (a) **B** (1)
- (b) **D** (1)
- (c) **E** (1)

- 1.5.2 Name the:

- (a) Process taking place at **A** (1)
- (b) Inner wall of the uterus where structure **E** implants (1)

- 1.5.3 State the type of cell division that takes place at **C**. (1)

- 1.5.4 How many chromosomes are normally found in **H**? (1)

- 1.5.5 Identify the extra-embryonic membrane **G**. (1)

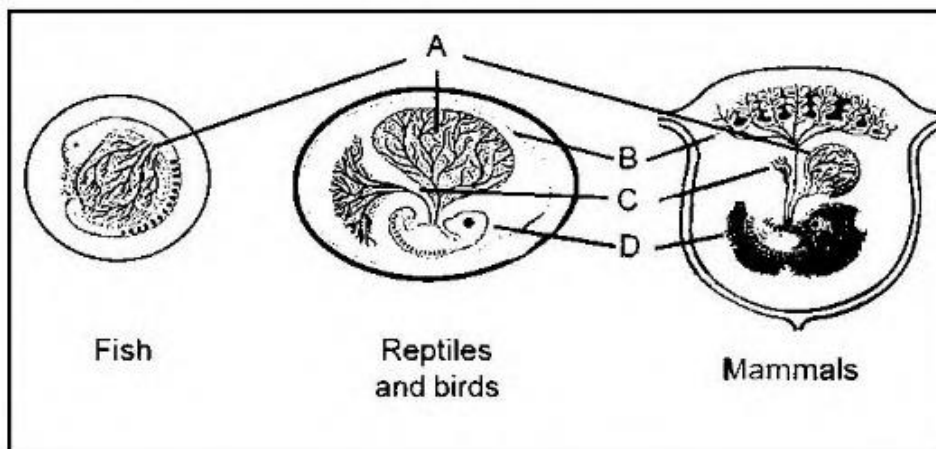
(8)

REPRODUCTIVE STRATEGIES (MAY/JUNE 22)

- 2.3 Describe how the developing embryo is protected and nourished in ovoviviparous organisms. (7)

NW SEPT 24

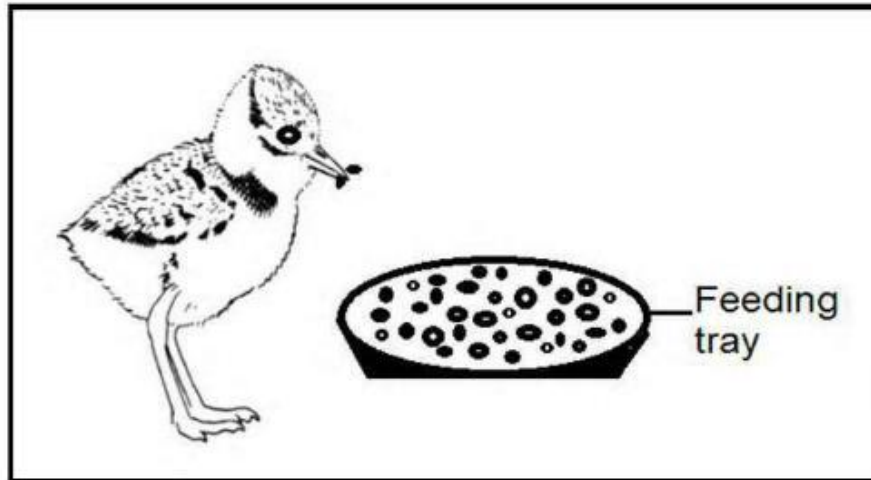
- 1.5 The diagram below shows an amniotic egg of different organisms.



- 1.5.1 What is precocial development? (1)
- 1.5.2 Give the function of the part labelled B. (1)
- 1.5.3 Name the organism without allantois. (1)
- 1.5.4 Give the LETTER and NAME of the part that provides nutrients to the embryo. (2)
- 1.5.5 Name the part that provides mechanical support for the embryo. (1)
- 1.5.6 Identify ONE organism that:
- (a) Undergo external fertilization (1)
 - (b) Have parental care (1)
 - (c) Are viviparous (1)
- (9)

MP SEPT 24

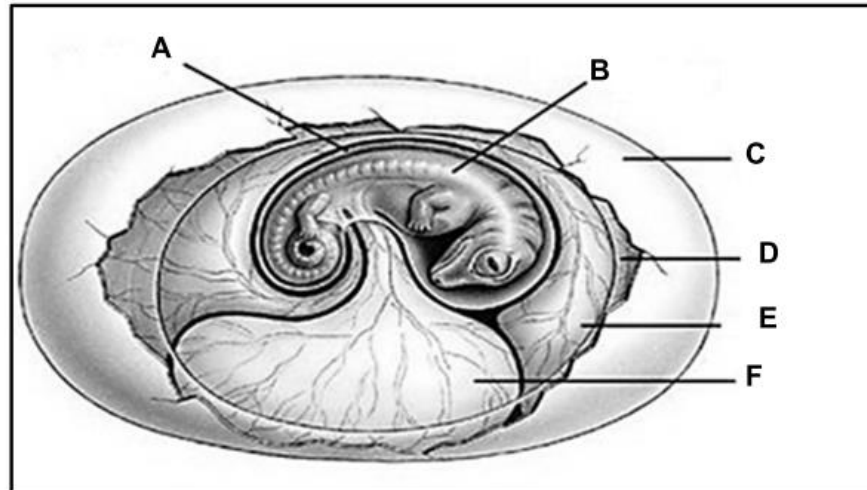
1.4 Study the diagram and answer the questions that follow.



- 1.4.1 Name the reproductive strategy that is carried out by the organism in the diagram above. (1)
- 1.4.2 Name the type of development shown in the diagram above. (1)
- 1.4.3 Give THREE visible reasons for your answer in QUESTION 1.4.2. (3)
- 1.4.4 Name the type of fertilization that occurs in the organism on the diagram above. (1)
- (6)

GP SEPT 24

- 1.4 Study the diagram below of an amniotic egg and answer the questions that follow.



- 1.4.1 Give the LETTER and NAME of the part that:

- (a) Protects the developing embryo from predators (2)
- (b) Provides nutrients to the embryo during its development (2)
- (c) Allows for the storage of waste products from the embryo (2)

- 1.4.2 The diagrams below show different stages of development.



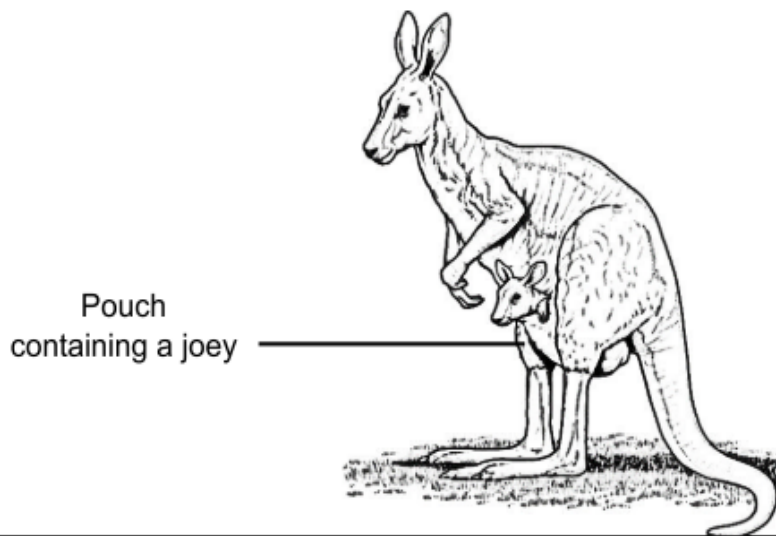
Name the diagram that represents:

- (a) Altricial development (1)
- (b) The type of development where a small amount of yolk was available to the embryo (1)

EC SEPT 24

2.2 Read the extract below.

The red kangaroo is the largest of all kangaroo species and is endemic to Australia. During copulation the male releases semen inside of the female's body and gestation takes 33 days until birth. The blind, naked and stumped legged baby kangaroo must crawl its way up the mother's fur to a pouch where it attaches onto a teat, that provides nourishment, and remains protected there for the next 190 days until becomes a joey. At 235 days the joey is ready to leave the mother's pouch full-time.

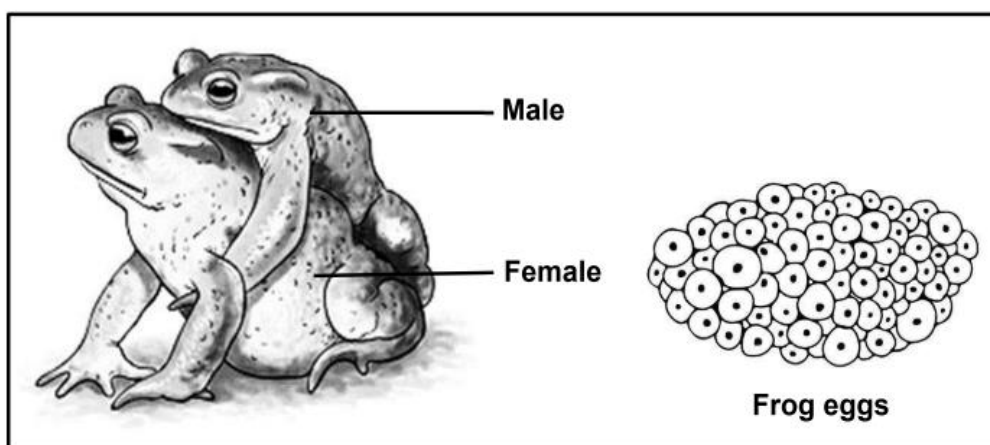


- 2.2.1 Identify the type of fertilisation that takes place in the red kangaroo. (1)
- 2.2.2 Give ONE reason for your answer in QUESTION 2.2.1. (1)
- 2.2.3 Identify the reproductive strategy used by the red kangaroo where its young are born alive. (1)
- 2.2.4 Discuss ONE parental strategy the red kangaroo displays that ensures a high survival rate of its young. (2)
- 2.2.5 Why would you describe the red kangaroo as altricial? (2)

NSC NOV 23

QUESTION 2

- 2.1 In some frog species, during mating, the male climbs onto the back of the female and grasps her with his front legs. During this time, the female will release about 6 000 ova, while the male releases sperm onto them. This mating behaviour is called amplexus.



- 2.1.1 Name the type of fertilisation that occurs during reproduction in frogs. (1)
- 2.1.2 Explain why the fertilised eggs of these frogs do not survive on land. (2)
- 2.1.3 Explain how amplexus increases the chances of fertilisation in frogs. (2)
- 2.1.4 From the information above, explain ONE other strategy that contributes to the reproductive success of the frog species. (2)
- (7)**

NSC NOV 24

- 2.3.1 From the extract, give:
- (a) TWO structures in the ovary that may develop into cysts (2)
 - (b) TWO symptoms associated with very large cysts (2)
- 2.3.2 Name the hormone:
- (a) Responsible for the growth of the follicle under normal conditions (1)
 - (b) That will be high in concentration in the blood of women where follicular cysts develop (1)
- 2.3.3 Give a reason for your answer to QUESTION 2.3.2(b). (1)
- 2.3.4 Explain why a woman will not be able to fall pregnant if she has a corpus luteum cyst that does not disappear. (5)
(12)

PLANT RESPONSE (MAY/JUNE 22)

- 2.5 Read the extract below.

Some plants contain chemical substances such as alkaloids and cyanogenic glycosides. Alkaloids are bitter-tasting compounds while cyanogenic glycosides are toxic substances.

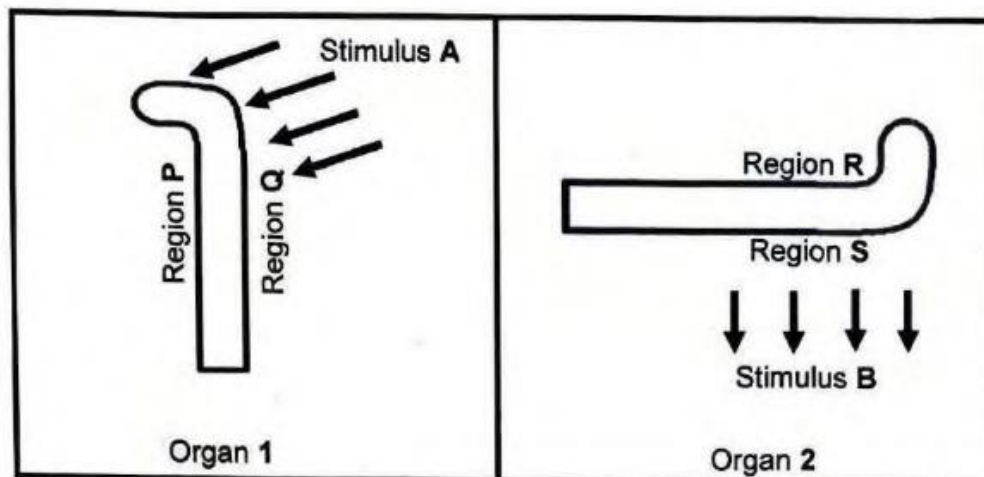
Caffeine is an example of an alkaloid that occurs in plants like *Coffea arabica* (coffee), *Camelia sinensis* (tea) and *Theobroma cacao* (cocoa). Although harmless to humans, caffeine kills pathogenic fungi.

Nicotine is another example of an alkaloid that is found in tobacco plants.

- 2.5.1 Name TWO alkaloids that are found in plants. (2)
- 2.5.2 Explain TWO ways in which caffeine production acts as a defence mechanism in plants. (4)
- 2.5.3 Name ONE other plant defence mechanism. (1)
(7)
- 3.1 Describe the role of auxins in phototropism when a plant is exposed to unilateral light. (5)

KZN SEPT 24

- 1.5 The diagrams below represent the growth responses of a stem and a root (in no particular order) to external stimuli.



- 1.5.1 Identify stimulus:

- (a) **A** (1)
(b) **B** (1)

- 1.5.2 Identify organs (stem or root):

- (a) **1** (1)
(b) **2** (1)

- 1.5.3 Write down the area (**P** or **Q**) where there will be high auxin concentration in organ 1. (1)

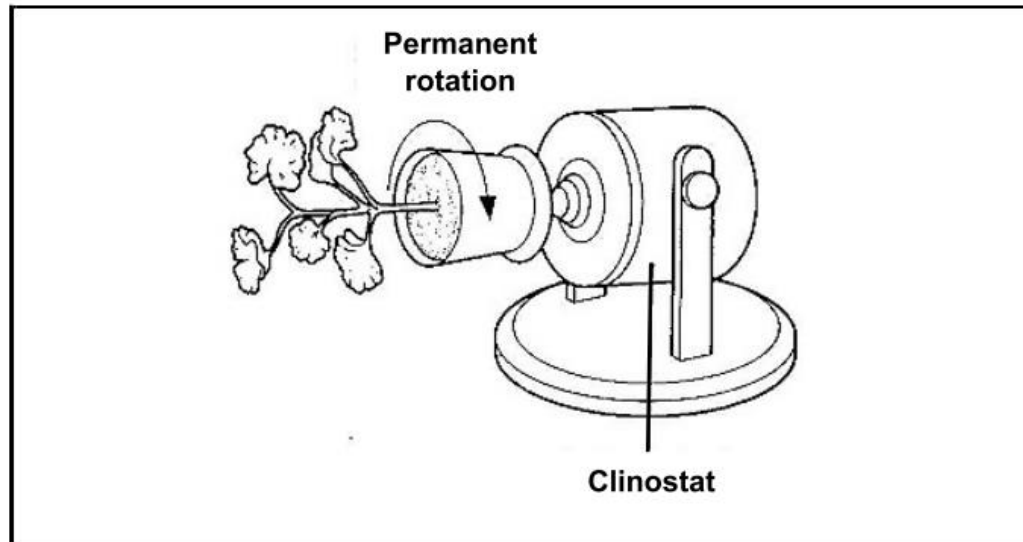
- 1.5.4 Write down the area (**R** or **S**) where there will be more cell elongation in organ 2. (1)

- 1.5.5 Identify the plant growth response shown by:

- (a) **Organ 1** (1)
(b) **Organ 2** (1)
(8)

EC SEPT 24

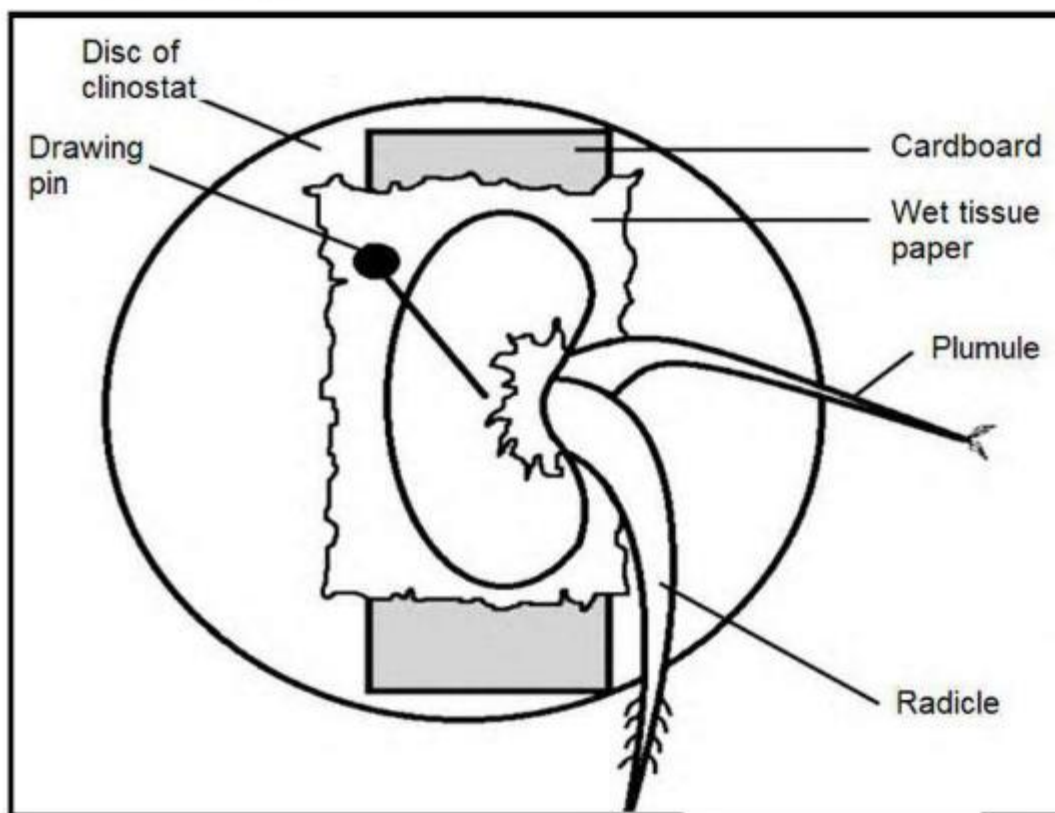
- 2.5 The experiment below shows a plant that was placed on a rotating clinostat in a dark room.



- 2.5.1 Identify the tropism that is tested in this experiment. (1)
- 2.5.2 Explain the direction of growth expected to be seen in the root. (3)
- 2.5.3 Describe why the stem of a plant will grow towards a unilateral light. (3)
- 2.5.4 Name TWO defence mechanisms used by plants to protect them from being eaten by animals. (2)

MP SEPT 24

3.5 An experiment was conducted to investigate the direction of plumule growth when the germinating seed was placed vertically on a stationary clinostat as shown in the diagram below. The growing tips of the germinating seed were exposed to light from all directions. The wet tissue paper was periodically sprayed with water to keep the seed moist. The seed was kept in this position for four days. The tip of plumule began to bend and grew in an upward direction after four days.



- 3.5.1 Name the hormone that controls the direction of plumule growth in a germinating seed. (1)
- 3.5.2 Give a reason for exposing the germinating seed to light from all directions. (1)
- 3.5.3 Explain the direction of plumule growth as observed after four days. (3)
- 3.5.4 How does the control differ from the experiment? (1)
(6)

INVESTIGATIVE QUESTIONS (MAY/JUNE 22)

- 3.2 The FSH test is sometimes used to determine the cause of infertility in females. The levels of FSH usually indicate the number of follicles in the ovaries. If the number of follicles are low or depleted, the pituitary gland will secrete more FSH.

An investigation was conducted to compare the average FSH levels in 4 different age groups.

The procedure was done as follows:

- 1 000 females were asked to participate (250 in each of the four age groups).
- The females were all healthy and not using any hormone-based contraceptives.
- Their blood FSH levels were measured on day 3 of the menstrual cycle for 5 cycles.
- The average FSH levels in their blood were calculated per age group.

The results are shown in the table below.

AGE GROUP	AVERAGE FSH LEVELS
20–32	7,0
33–35	7,8
36–40	8,0
41–50	8,5

- 3.2.1 State TWO factors, regarding the females, that should have been kept constant during the investigation. (2)
- 3.2.2 State TWO ways in which the reliability of the results was ensured. (2)
- 3.2.3 State ONE conclusion that can be drawn from the results. (2)
- 3.2.4 Explain why the oestrogen levels may remain low in the blood of the females in the 41–50 age group. (3)
- 3.2.5 Explain why females that were using progesterone-based pills were excluded from the investigation. (3)
- (12)**

MP SEPT 24

2.5 An investigation was conducted to determine the effect of different amounts of thyroxin on metabolic rate.

The procedure was as follows:

- Nine healthy adult male rats were used.
- They were divided into three groups of three rats each: 1, 2 and 3.
- All three groups were kept in the same environment in three separate cages.
- Each group received the same amount of water.
- Each group was given a different diet.
- Their initial mass was taken.
- Three weeks later the mass was taken again.
- Their oxygen consumption was also measured.

DIET A: Food containing all the essential nutrients without thyroxin

DIET B: Food containing all the essential nutrients and an extract of thyroxin

DIET C: Food containing all the essential nutrients, and a chemical that inhibits the effect of thyroxin

GROUP	DIET	AVERAGE MASS OF RATS (g)		AVERAGE OXYGEN CONSUMPTION (mL/kg/min)
		INITIAL	AFTER THREE WEEKS	
1	A	319	321	4,0
2	?	320	309	10,0
3	?	318	340	2,7

NOTE: Group 1 was given DIET A.

2.5.1 Identify the:

(a) Independent variable (1)

(b) Dependent variable (1)

2.5.2 Name the group(s) (1, 2 or 3) in which the average mass of the rats increased. (2)

2.5.3 Which factors were kept constant in this investigation? (2)

2.5.4 Refer to changes in mass and oxygen consumption of the rats in the table above, provide a conclusion thereof. (2)
(8)

KZN SEPT 24

- 3.4 Hypopituitarism happens when the pituitary gland is not active enough. As a result, the gland does not make enough hormones including antidiuretic hormone (ADH). This leads to increased urine output as a symptom. A hormone supplement *desmopressin (DDAVP, Nocduma)* is used to replace the missing ADH and lowers the amount of urine the body makes.

Scientists conducted an investigation following the steps below:

- 50 adults (men and women) of different age groups participated.
- They were divided into two groups (A and B)
- **Group A** was given a dose of desmopressin every evening at 18h00.
- **Group B** was not given any treatment.
- The amount of urine produced was measured before the start of the investigation.
- The amount of urine produced between 18h00 and 6h00 was measured every 2 hours daily for 5 days.

The table below shows the results of the investigation.

DAYS	AVERAGE URINE PRODUCED (ml/hour)	
	GROUP A	GROUP B
1	110	105
2	105	95
3	115	75
4	125	58
5	124	45

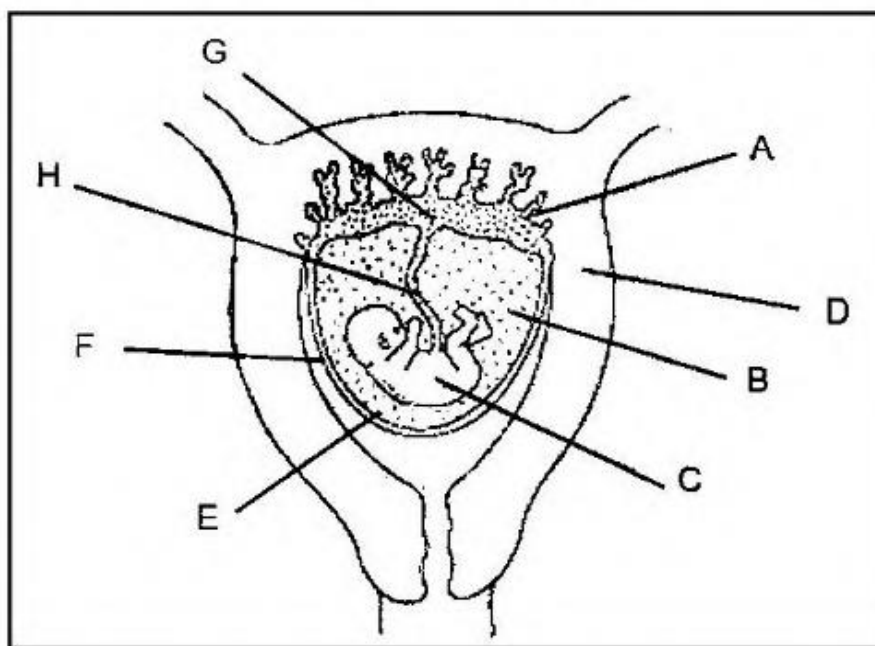
- 3.4.1 State the aim of this investigation. (2)
- 3.4.2 Give TWO ways in which the investigator increased the reliability of the results. (2)
- 3.4.3 State TWO planning steps for this investigation. (2)
- 3.4.4 Name the organ on which desmopressin functions. (1)
- 3.4.5 Give TWO reasons why the validity of this investigation was low. (2)
- 3.4.6 Explain results obtained in group B. (4)
- 3.4.7 State the conclusion for this investigation. (2)
- (15)**

DEVELOPMENT, IMPLANTATION & FERTILIZATION (MAY/JUNE 22)

- 3.3 Describe the development of the placenta and umbilical cord from the time of implantation. (6)

NW SEPT 24

- 2.2 The diagram below illustrates the human foetus in the uterus.



- 2.2.1 Name:

- (a) The process by which the blastocyst is attached to the uterine wall (1)
- (b) The period during which the foetus develops in the uterus (1)

- 2.2.2 Describe the stages of development of a zygote after fertilization. (3)

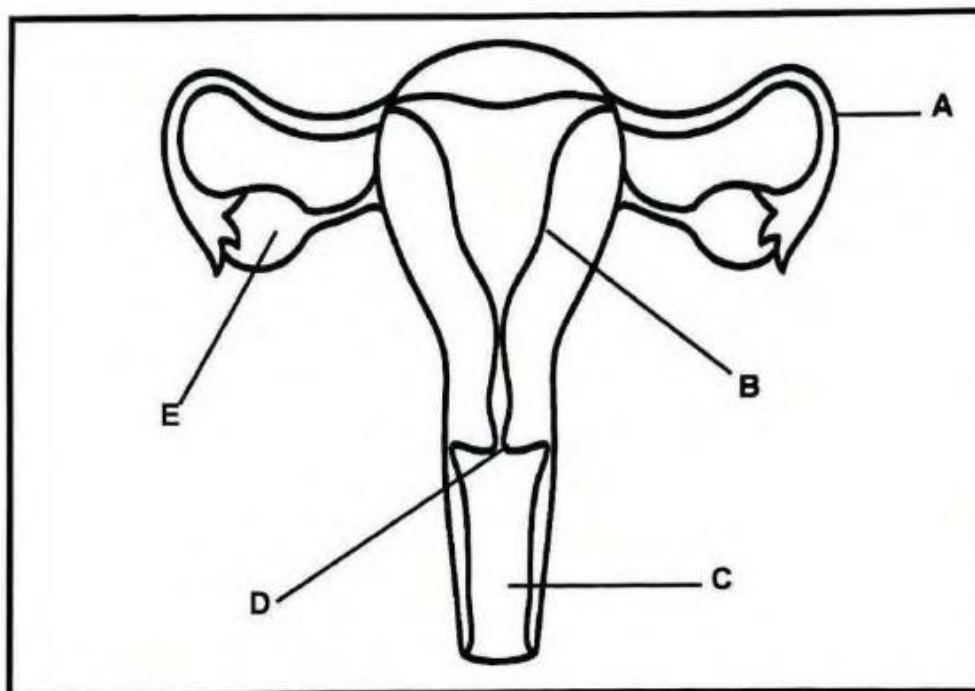
- 2.2.3 Describe the effect on the foetus if the liquid in part **B** is NOT enough during the developmental stages. (4)

- 2.2.4 Explain TWO functions of the blood vessels in the umbilical cord during the developmental stages. (4)
- (13)

KZN SEPT 24

QUESTION 2

2.1 The diagram below shows a female reproductive system.



2.1.1 Identify parts:

- (a) B (1)
- (b) D (1)
- (c) E (1)

2.1.2 Give ONE function of part:

- (a) A (1)
- (b) C (1)

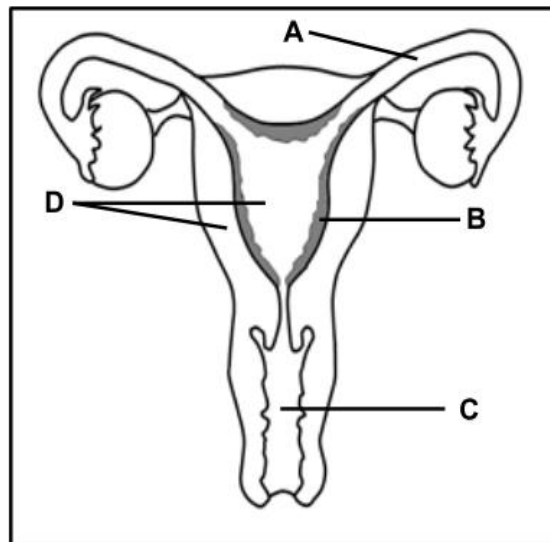
2.1.3 Explain the consequence for reproduction if part A was blocked on both sides. (3)

2.1.4 Describe how the developing embryo is protected during gestation. (5)

MAY/JUNE 23

QUESTION 2

2.1 The diagram below represents the female reproductive system.



- | | | |
|-------|---|-------------|
| 2.1.1 | Identify part B . | (1) |
| 2.1.2 | Name the process that takes place in part A that leads to zygote formation. | (1) |
| 2.1.3 | Describe the process named in QUESTION 2.1.2. | (1) |
| 2.1.4 | Describe the development of the zygote until implantation occurs. | (4) |
| 2.1.5 | Explain TWO ways in which part D is structurally suited for gestation. | (4) |
| 2.1.6 | Describe how the secretion of the prostate gland provides protection for the sperm from the conditions in part C . | (2) |
| | | (13) |

MAY/JUNE 23

2.2 Read the extract below.

PLASTIC LINKED TO FEMALE INFERTILITY

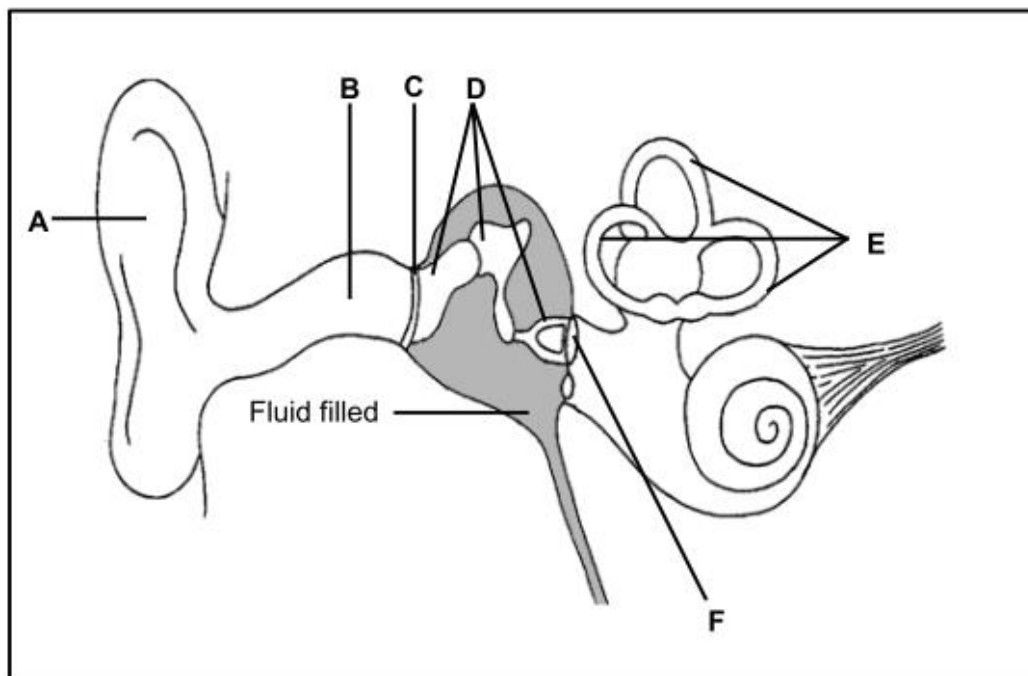
Several studies indicate that bisphenol A (BPA), a chemical used in the production of many household plastic products, may be linked to female infertility (inability to get pregnant naturally and to deliver a healthy baby). BPA can be ingested or absorbed through the skin when using plastic products.

BPA seems to interfere with the normal secretion of FSH by the pituitary gland and is linked to abnormal menstrual cycles and reduced implantation rates. These studies also show a link between high BPA levels and a decrease in the development and maturation of ovarian follicles.

- 2.2.1 State ONE function of FSH. (1)
- 2.2.2 Name ONE other hormone in females that is secreted by the pituitary gland during the menstrual cycle. (1)
- 2.2.3 Explain how an undersecretion of the hormone in QUESTION 2.2.2 may lead to infertility. (2)
- 2.2.4 Explain why a decrease in the maturation of ovarian follicles may lead to reduced implantation rates. (5)
- (9)**

THE EAR (MAY/JUNE 22)

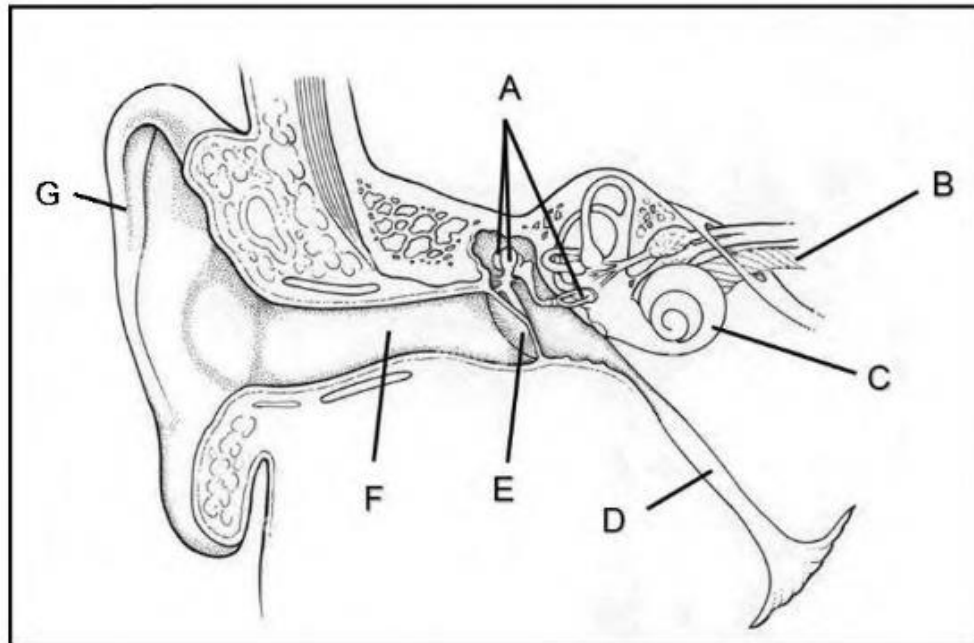
- 3.4 The diagram below represents part of the human ear with a middle-ear infection.



- 3.4.1 Identify part:
- (a) **B** (1)
 - (b) **D** (1)
- 3.4.2 State ONE function of part **A**. (1)
- 3.4.3 Explain how middle-ear infection could affect hearing. (4)
- 3.4.4 Describe the role of the Eustachian tube. (2)
- 3.4.5 Name the small device that is used in the treatment of middle-ear infection. (1)
- 3.4.6 Write down the LETTER of the part where the small device, named in QUESTION 3.4.5, is inserted. (1)
- 3.4.7 Describe how part **E** is involved in maintaining balance when there is a change in the speed and direction of movement of the head. (4)
- (15)**

NW SEPT 24

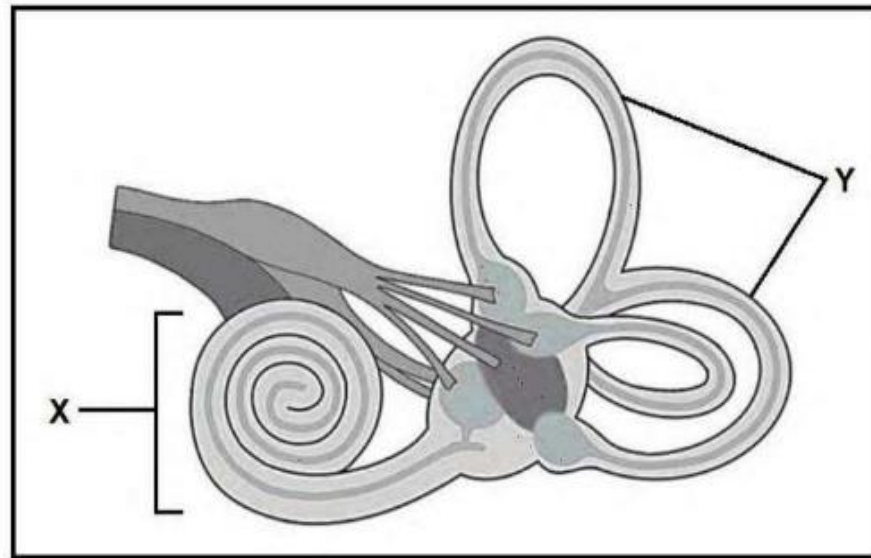
3.3 The diagram below shows the cross-section of the human ear.



- 3.3.1 Identify parts **A** and **F**. (2)
- 3.3.2 Identify passage **D** and state its function. (2)
- 3.3.3 Give the pathway (in LETTERS) of hearing in the human ear. (2)
- 3.3.4 Explain the function of part **E** in the process of hearing. (2)
- 3.3.5 Explain what would happen to the ability to hear if part **C** is damaged. (4)
- (12)

MP SEPT 24

3.3 The diagram below represents part of the inner ear.



3.3.1 Identify part:

(a) X

(1)

(b) Y

(1)

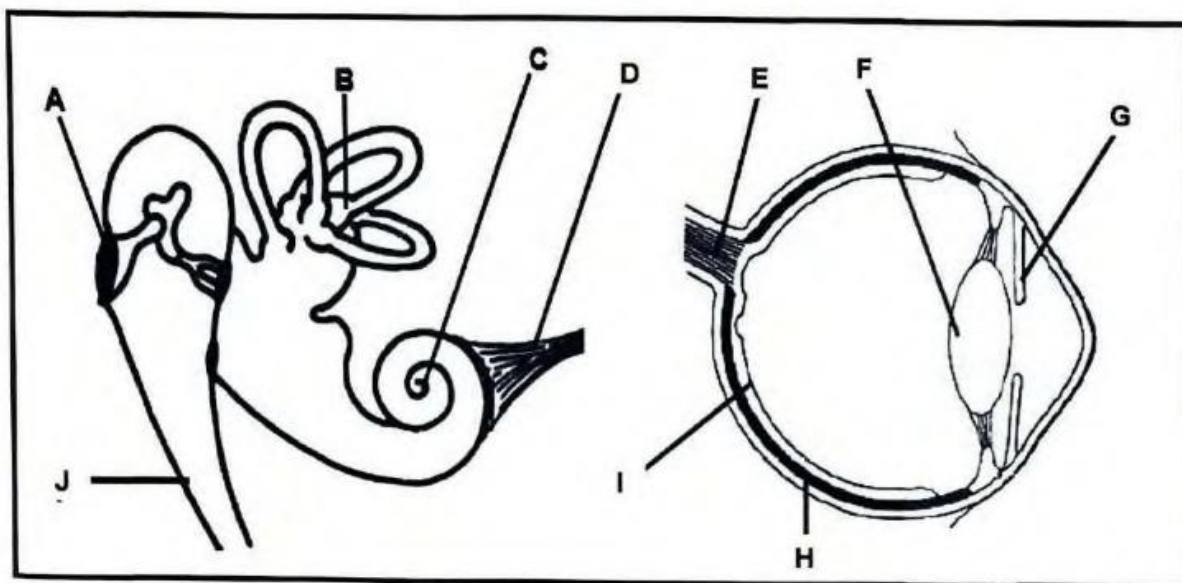
3.3.2 Describe the role of the parts of the ear from the time sound waves are trapped until pressure waves are set up in the inner ear.

(6)

(8)

KZN SEPT 24

3.1 The diagram below show part of a human ear and a human eye.



3.1.1 Write down TWO LETTERS only of the parts that:

- (a) Carry impulses (2)
- (b) Contain receptors (2)

3.1.2 State ONE function of parts:

- (a) G (1)
- (b) H (1)
- (c) J (1)

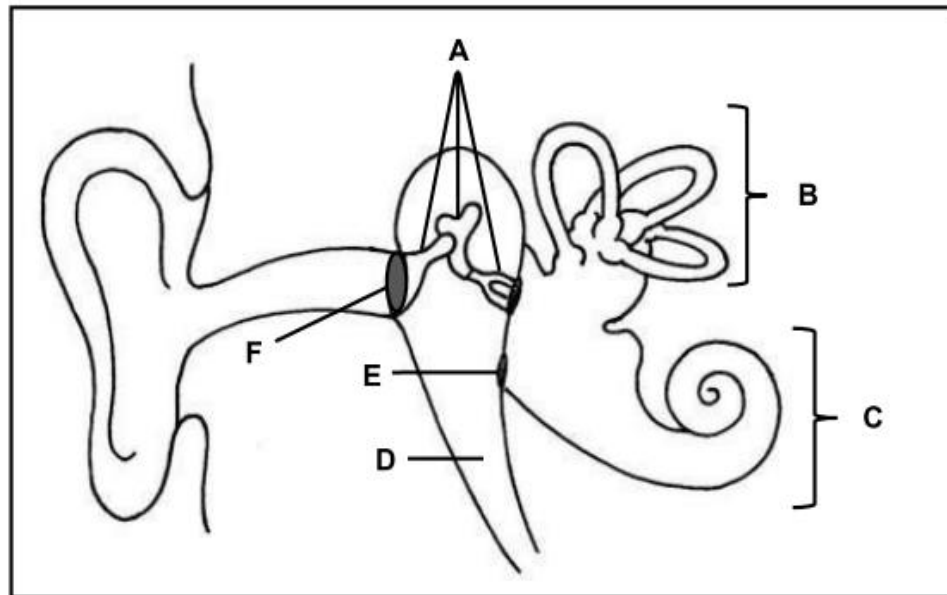
3.1.3 Miss Candice Ndlovu walked into a hall with a wet floor without knowing. She heard a loud voice from the helping lady "it's wet ..." and she slipped and almost fell.

Describe the role of part(s):

- (a) B in maintaining balance in Miss Candice Ndlovu (3)
- (b) A to C in enabling her to hear (5)

NSC NOV 23

1.4 The diagram below represents the human ear.



1.4.1 Identify part:

- (a) **B** (1)
- (b) **E** (1)

1.4.2 Give the LETTER and NAME of the part that:

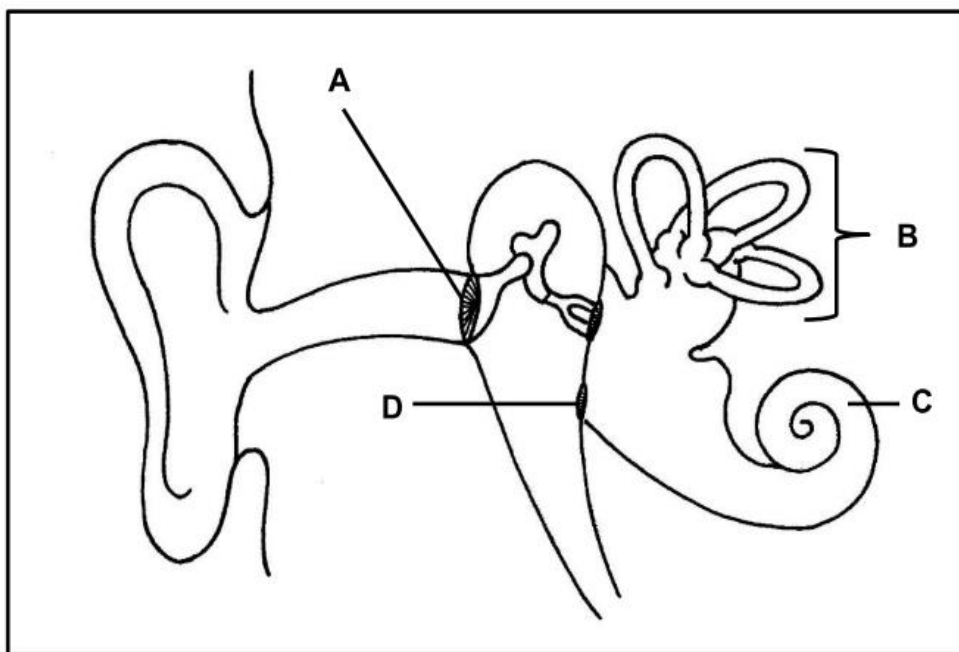
- (a) Is filled with air (2)
- (b) Contains the organ of Corti (2)

1.4.3 Give the LETTER of the part:

- (a) Where grommets are inserted (1)
 - (b) That amplifies vibrations (1)
- (8)**

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3.3 The diagram below represents a part of the human ear.



3.3.1 Identify part **C**. (1)

3.3.2 State ONE function of:

(a) Part **D** (1)

(b) The receptors found in part **C** (1)

3.3.3 Explain why a build-up of ear wax at part **A** may result in temporary hearing loss. (2)

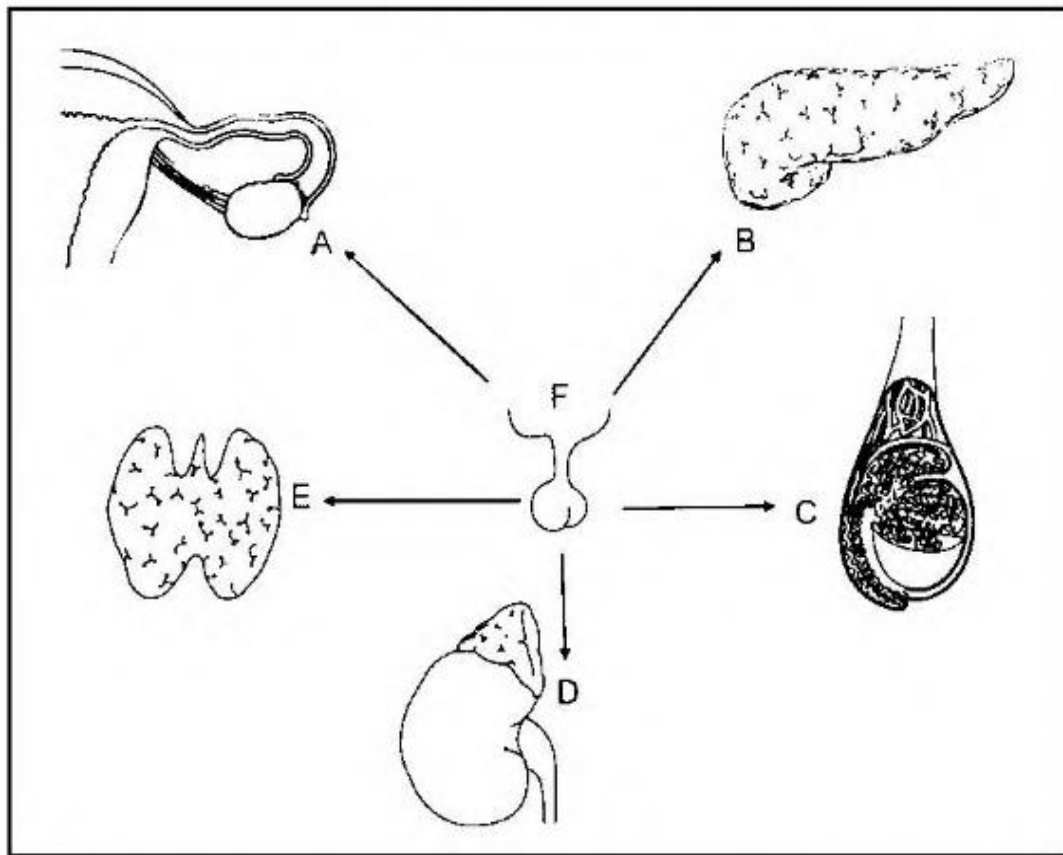
3.3.4 A grommet is a small device that allows the air to move into and out of the middle ear. This prevents pressure build-up in the middle ear.

Explain how the use of grommets in the treatment of middle-ear infections prevents hearing loss. (4)

3.3.5 Describe how the receptors in part **B** are involved in maintaining balance when there are changes in the speed and direction of movement of the head. (4)
(13)

ENDOCRINE SYSTEM (NW SEPT 24)

1.4 The diagram below shows organs involved in the endocrine systems.



Give the LETTER and NAME of the gland/hormone that:

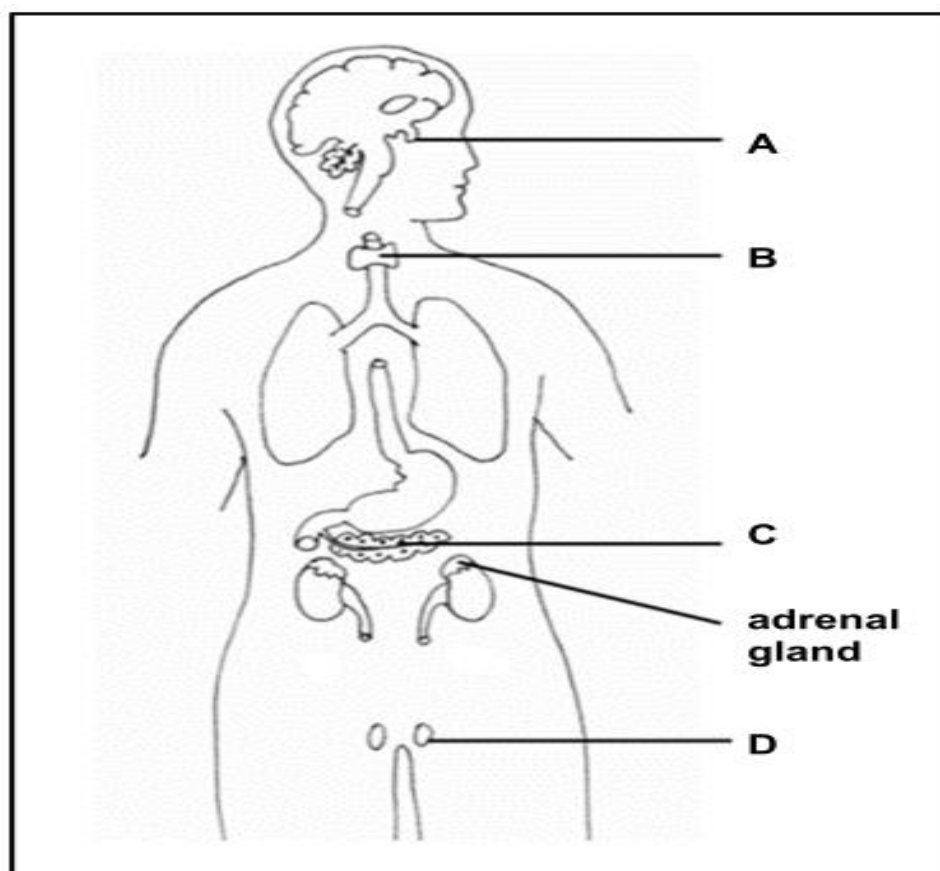
- | | | |
|-------|--|-------------|
| 1.4.1 | Influence height, building bones and muscles | (2) |
| 1.4.2 | Serves as both endocrine and exocrine gland | (2) |
| 1.4.3 | Secrete hormones responsible for pregnancy | (2) |
| 1.4.4 | Secrete a hormone that when imbalanced causes a goitre | (2) |
| 1.4.5 | Controls secondary sexual characteristics in males | (2) |
| | | (10) |

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- 3.4 3.4.1 Explain how the process of vasodilation in the skin contributes to thermoregulation. (4)
- 3.4.2 Describe the role of vasodilation and sweating in thermoregulation. (3)
(7)

GP SEPT 24

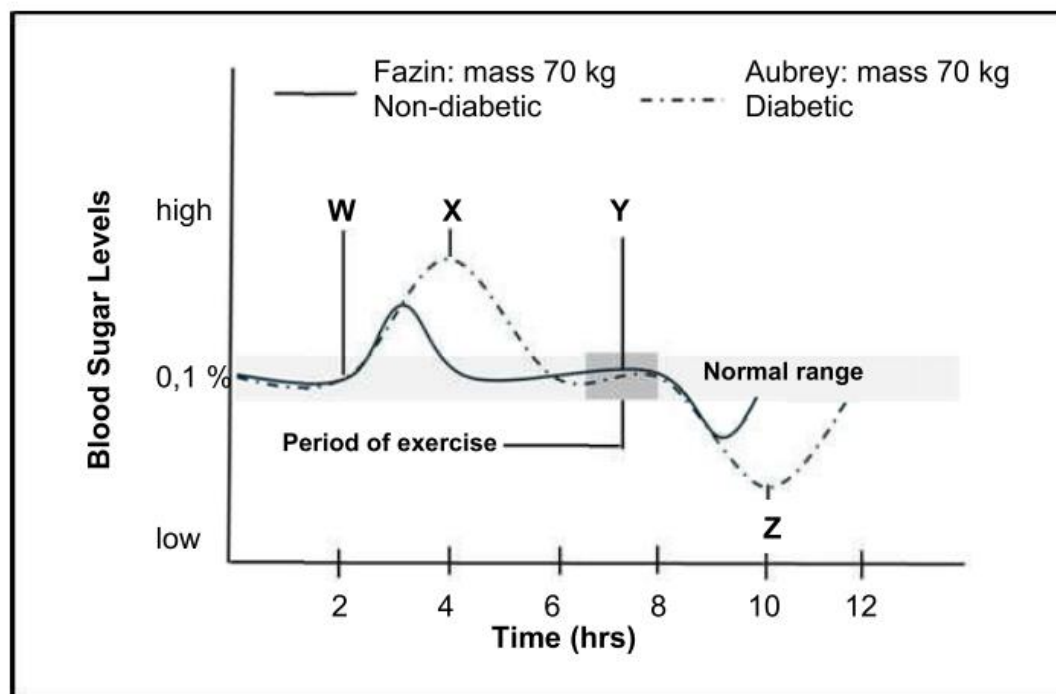
3.3 The diagram below shows the male body with the position of various glands.



- 3.3.1 (a) Name TWO hormones secreted by the adrenal gland. (2)
- (b) Name the hormone secreted by gland D. (1)
- 3.3.2 Name and describe the role of gland A when the hormone secreted by gland B increases above the normal level. (5)
(8)

GP SEPT 24

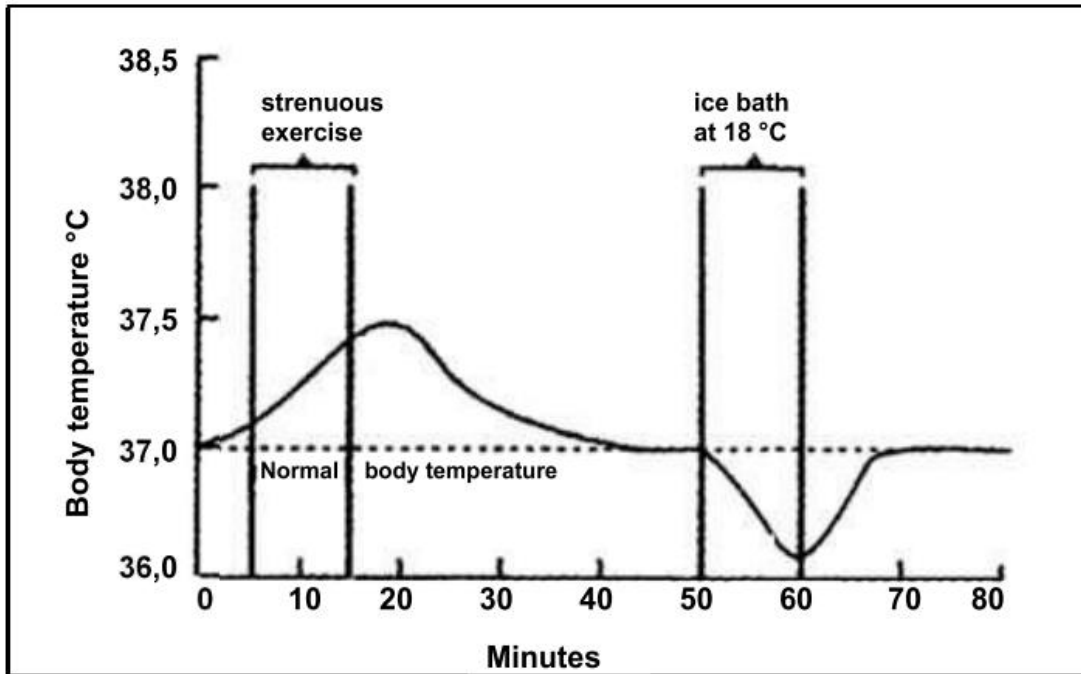
3.4 Study the graph below and answer the questions that follow.



- 3.4.1 (a) Name the hormone Aubrey received at **X** on the graph. (1)
- (b) Provide a suitable reason for your answer to QUESTION 3.4.1 (a). (1)
- 3.4.2 Define the term *homeostasis*. (2)
- 3.4.3 Describe the negative feedback mechanism that occurs between points **Y** and **Z**. (5)
- (9)

GP SEPT 24

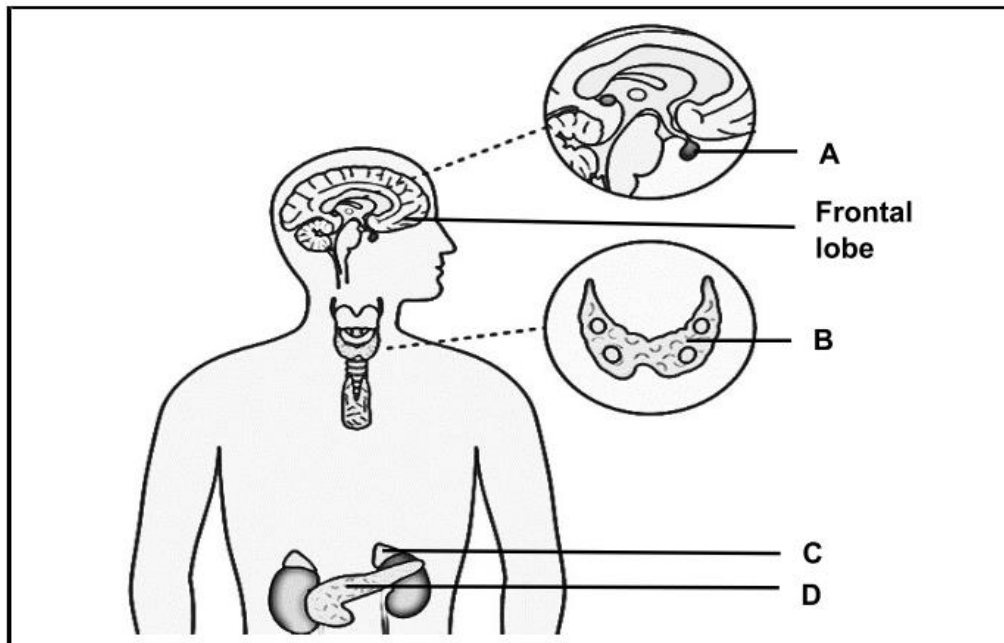
- 3.5 The graph below shows the effect of strenuous exercise on an athlete's body temperature, followed by an ice bath.



- 3.5.1 Which part of the brain responds to changes in the body's temperature? (1)
- 3.5.2 Describe the changes in the athlete's body between 20 and 40 minutes, as illustrated in the graph. (5)
- 3.5.3 Explain the cause of the increase in body temperature during strenuous exercise. (2)
- (8)

EC SEPT 24

3.2 The diagram below represents the endocrine glands of the human body.



3.2.1 Identify glands:

(a) **C** (1)

(b) **D** (1)

3.2.2 What is the function of the 'negative feedback mechanism' that regulates gland **B**? (2)

3.2.3 Explain why gland **D** can be described as both an endocrine and exocrine gland. (4)

3.2.4 Describe how gland **C** may increase glucose and oxygen supply to skeletal muscles in an emergency. (5)

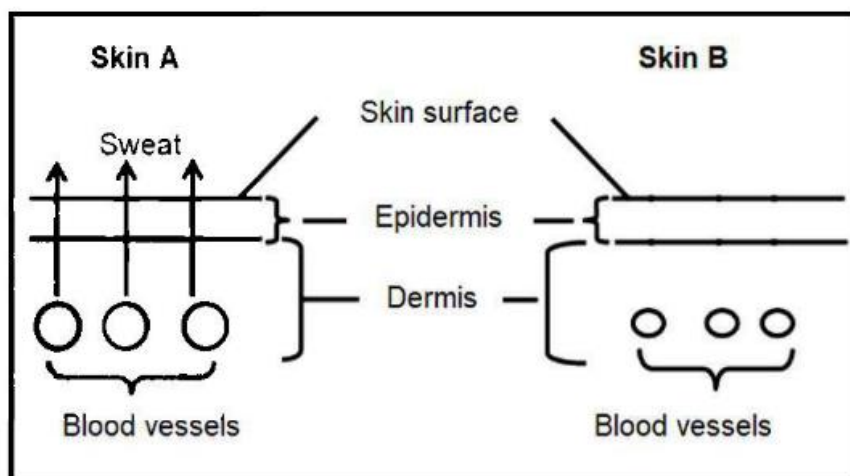
3.2.5 Due to a tumour growing in the frontal lobe of the brain, excess levels of growth hormone (GH) may be secreted.

(a) Which part of the brain is responsible for secreting growth hormone (GH)? (1)

(b) Name ONE condition excess levels of growth hormone (GH) would cause in adults. (1)

MP SEPT 24

- 2.4 Study the diagram of skin **A** and **B** showing the section through the blood vessels under different environmental conditions.



- 2.4.1 Which is the environmental condition that resulted in appearance of skin **B**? (1)
- 2.4.2 Describe the process that is taking place in skin **A** in order to maintain a constant body temperature. (3)
- 2.4.3 Explain why sweating plays an important role in maintaining body temperature, when the environmental temperature increases. (3)
- 2.4.4 A person with skin **B** started to exercise as a way of keeping warm for a period of 20 minutes. This person's skin temperature was measured over that time period. The table below shows temperature measurements obtained.

Time (Minutes)	Temperature of person with skin B ($^{\circ}\text{C}$)
0	19 $^{\circ}\text{C}$
5	27 $^{\circ}\text{C}$
10	30 $^{\circ}\text{C}$
15	35 $^{\circ}\text{C}$
20	38 $^{\circ}\text{C}$

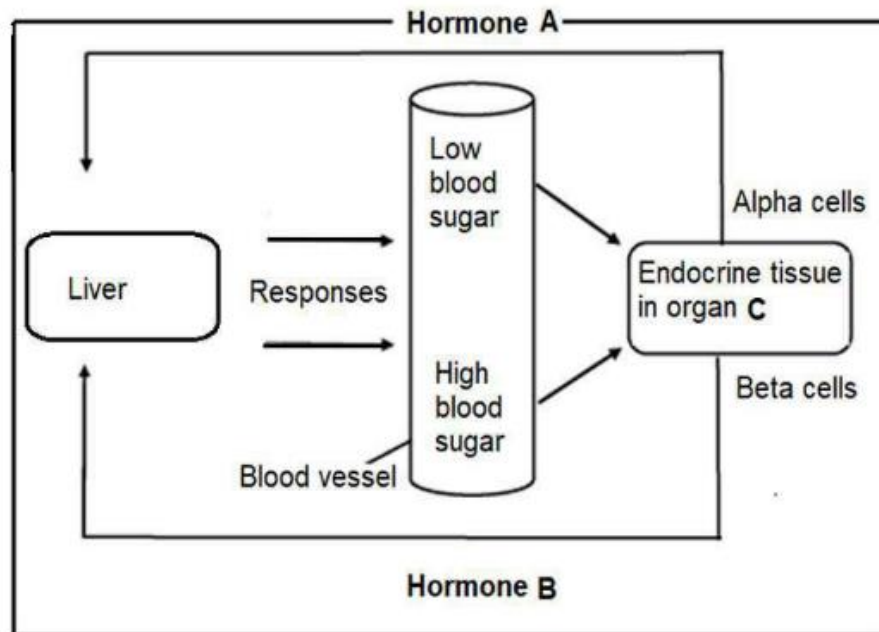
Calculate the percentage increase of temperature from 10 to 20 minutes.

(3)
(10)

MP SEPT 24

QUESTION 3

- 3.1 The diagram below represents the homeostasis of blood glucose in the human body.



- 3.1.1 Identify hormone **A** and **B** (2)
- 3.1.2 Name: (1)
- (a) Organ **C** (1)
- (b) The endocrine tissue in organ **C**. (1)
- 3.1.3 Describe the response that is carried out when a person has not eaten any sugar-containing food for six hours. (6)
- (10)

KZN SEPT 24

3.2 The passage below refers to thermoregulation.

Hyperthermia

Hyperthermia is a group of heat-related illnesses that occur if your body temperature rises uncontrollably, typically due to hot and humid weather. Signs that your body temperature is too high include a rapid heart rate, confusion, dry skin and hot skin. Prevent hyperthermia by drinking plenty of fluids and staying in air-conditioned spaces when it's hot outside

You can usually treat hyperthermia at home with cool compresses and fluids. You must seek medical attention immediately if you develop heat stroke, or a body temperature of 106 degrees or higher.

3.2.1 Name the control centre for temperature in the brain. (1)

3.2.2 Give TWO symptoms of hyperthermia mentioned in the passage. (2)

3.2.3 Describe the changes that occur in the skin when a person sits in a cold environment. (4)

3.2.4 Explain the possible effect of a prolonged hyperthermia on the body's metabolism. (3)

3.3 The conditions within cells depend on the conditions within the internal environment (the tissue fluid).

3.3.1 Tabulate TWO expected differences in the blood glucose levels between diabetic and non-diabetic people after eating a meal. (5)

3.3.2 Describe how the body maintains carbon dioxide within normal levels during an exercise. (5)

EC SEPT 24

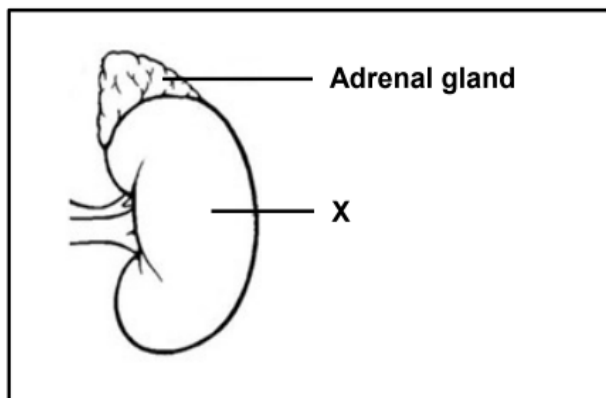
3.4 During periods of intense exercise, carbon dioxide levels in the blood and the body's temperature increases.

3.4.1 Describe the homeostatic control of carbon dioxide when it is too high in the blood. (7)

3.4.2 Describe what would be the effect on the athlete's body if it is unable to reduce its temperature. (3)

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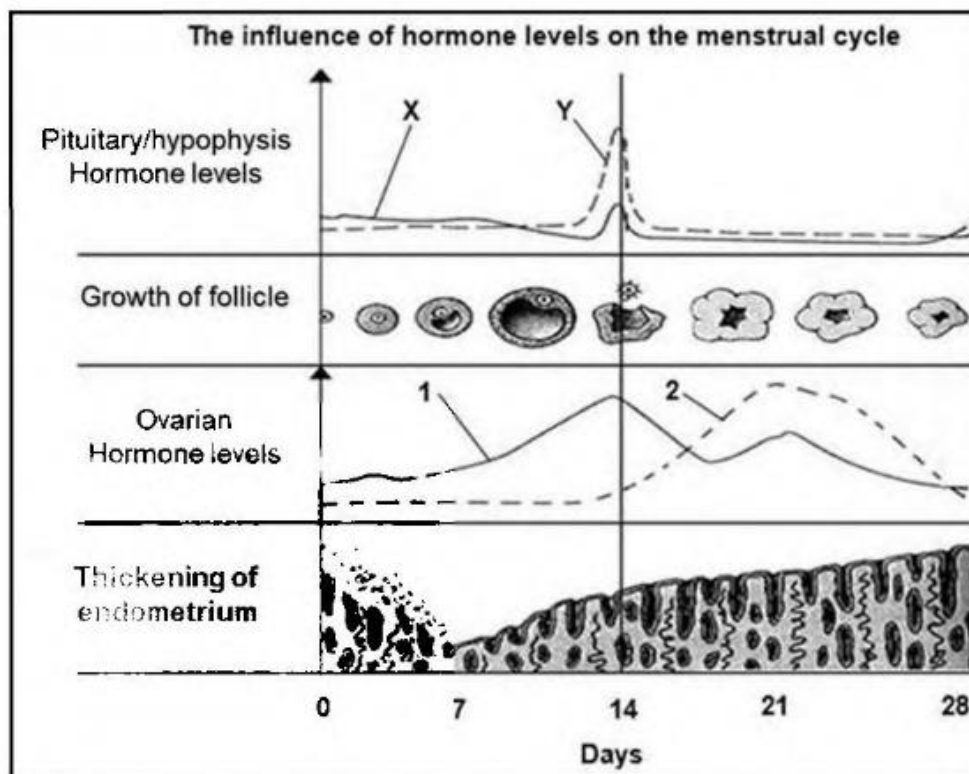
- 3.2 The diagram below shows the location of the adrenal gland in the human body.



- 3.2.1 Identify:
- (a) Organ **X** (1)
 - (b) The system to which the adrenal gland belongs (1)
- 3.2.2 State TWO characteristics of the type of glands that belongs to the system identified in QUESTION 3.2.1(b). (2)
- 3.2.3 Describe the interaction between the adrenal gland and organ **X** in maintaining homeostasis when salt levels in the blood are low. (5)
- 3.2.4 Explain the effect that a secretion of the pituitary gland will have on organ **X** when a person experiences dehydration. (5)
- (14)**

MENSTRUAL CYCLE (NW SEPT 24)

- 2.4 The graph below shows the menstrual cycle and the influence of different hormones on the blood of a mature woman over a 28-day cycle.



- 2.4.1 From the graph, state:

- (a) On which day ovulation takes place (1)
- (b) Between which days menstruation take place (1)

- 2.4.2 Give ONE visible reason from the graph for your answer to QUESTION 2.4.1(b). (2)

- 2.4.3 Explain why the progesterone levels must increase as shown on the graph during the cycle. (2)

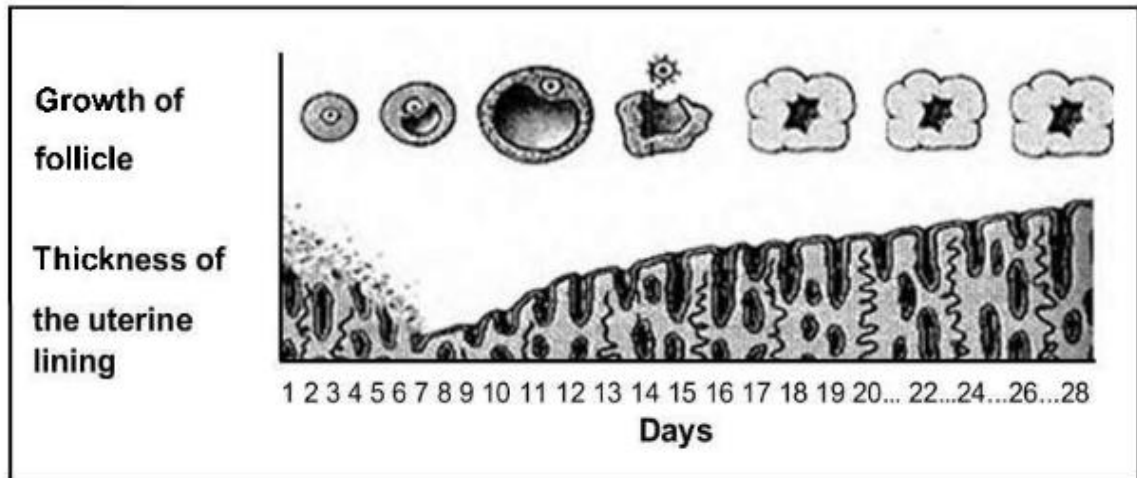
- 2.4.4 Describe the relationship of oestrogen and the endometrium in the uterus during days 7 to 14 of the cycle. (2)

- 2.4.5 (a) Did fertilisation take place during the 28-day cycle as illustrated in the graph? (1)

- (b) Explain your answer to QUESTION 2.4.5(a). (2)

MP SEPT 24

- 2.2 The diagram below shows some of the changes that take place during the menstrual cycle.

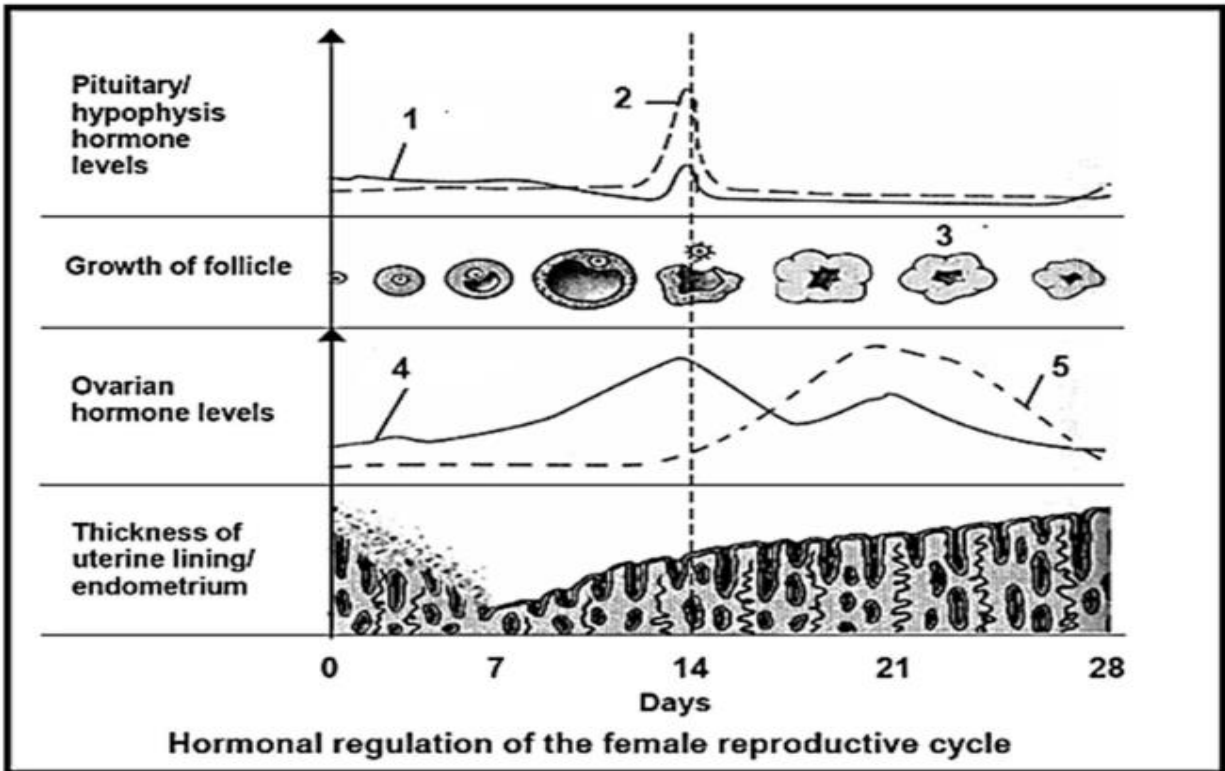


- 2.2.1 On which day did ovulation take place? (1)
- 2.2.2 Name TWO hormones which will increase in level between day 2 and day 10. (2)
- 2.2.3 Give TWO observable reasons for your answer to QUESTION 2.2.2. (2)
- 2.2.4 Provide evidence from the diagram which indicates that fertilisation took place. (2)
- 2.2.5 Describe the role of LH and Progesterone during the menstrual cycle. (6)
- (13)

GP SEPT 24

QUESTION 2

2.1 Study the diagrams and graphs below, which show the hormonal regulation of the female reproductive cycle.



2.1.1 Give the NUMBER and NAME of the hormone that:

(a) Stimulates the development of a follicle (2)

(b) Maintains the endometrium between days 7 and 14 (2)

2.1.2 (a) Explain the function of the corpus luteum. (2)

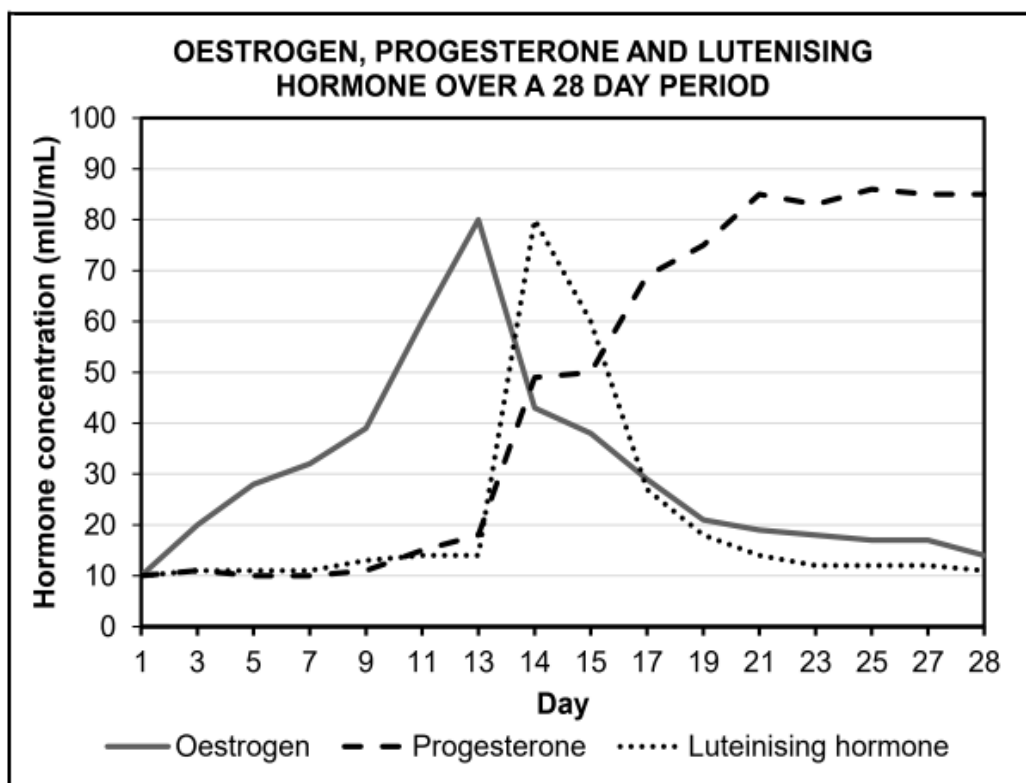
(b) Describe how the corpus luteum is formed. (3)

2.1.3 Give TWO visible reasons, using the information from the diagrams and graphs above, to explain why the woman is not pregnant. (2)

(11)

EC SEPT 24

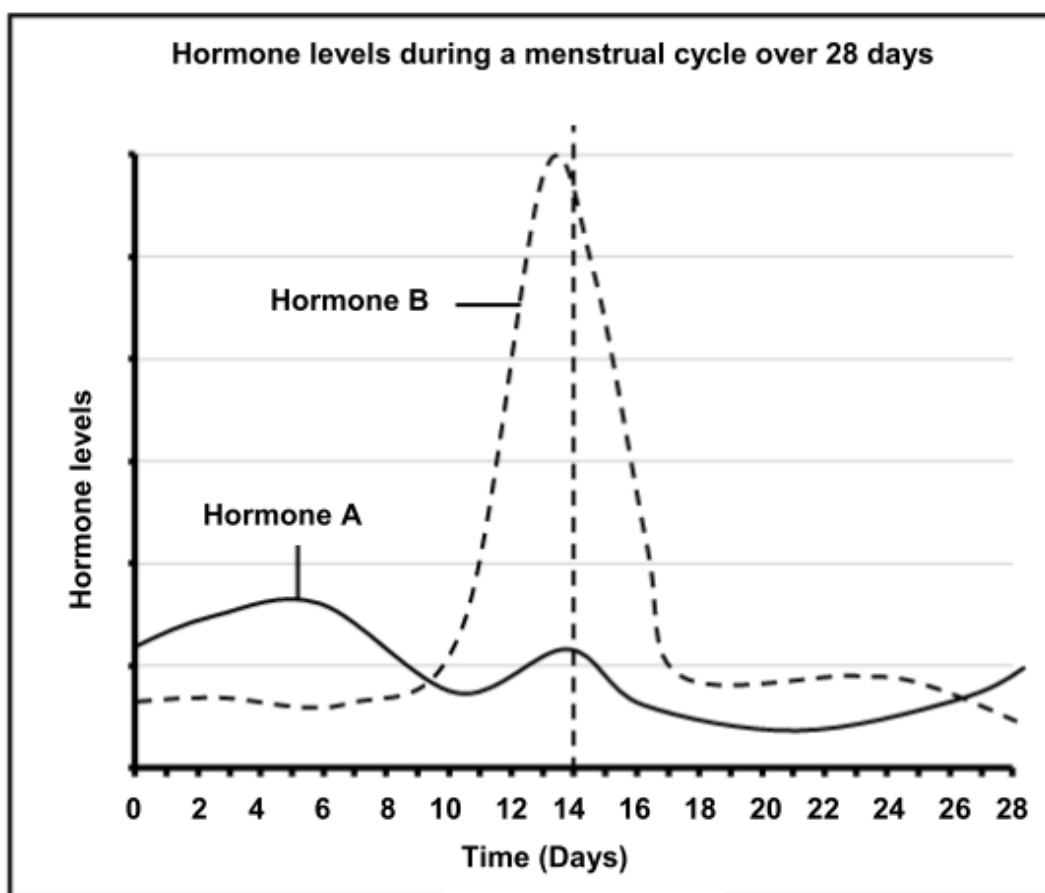
- 3.3 The graph below shows the changes in female hormones during the menstrual cycle.



- 3.3.1 Identify the structures that secrete:
- (a) Oestrogen from day 1–13 (1)
 - (b) Progesterone from day 13–20 (1)
- 3.3.2 On which day did ovulation take place? (1)
- 3.3.3 Give a reason for your answer to QUESTION 3.3.2. (1)
- 3.3.4 Explain why progesterone levels remain high after day 21. (2)
- 3.3.5 Why is it not possible for a female to develop another Graafian follicle during pregnancy? (4)

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- 2.3 The graph below shows the levels of two hormones that are secreted by the pituitary gland during the menstrual cycle.



- 2.3.1 State TWO functions of hormone **B**. (2)
- 2.3.2 Explain why a female who is struggling to get pregnant:
- (a) May be given pills containing hormone **A** as a treatment (3)
 - (b) Will have her levels of hormone **B** constantly monitored (2)
- 2.3.3 Explain how the levels of hormone **A** on days 0 to 5 will differ in a pregnant female. (3)
(10)
- 2.4 Describe the secretion of the ovarian hormones and their role in the menstrual cycle. (5)