

# The City School

Unified Mid-Year Examination  
2016 - 2017  
CLASS 10



CANDIDATE NAME

INDEX NUMBER

--	--	--	--	--

DATE: \_\_\_\_\_

**BIOLOGY**

**Paper 1 Multiple Choice**

**5090/12**

**1 hour**

**Additional Materials:** Multiple Choice Answer Sheet  
Soft clean eraser  
Soft pencil (type B or HB or recommended)

## READ THESE INSTRUCTION FIRST

Write in soft pencil.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Write your name and index number on the Answer Sheet in the spaces provided.

There are **forty** questions on this paper. Answer all questions. For each question there are four possible answers **A, B, C and D**.

Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

**Read the instructions on the Answer Sheet very carefully.**

Each correct answer will score one mark. A Mark will not be deducted for a wrong answer.

This document consists of **17** printed pages

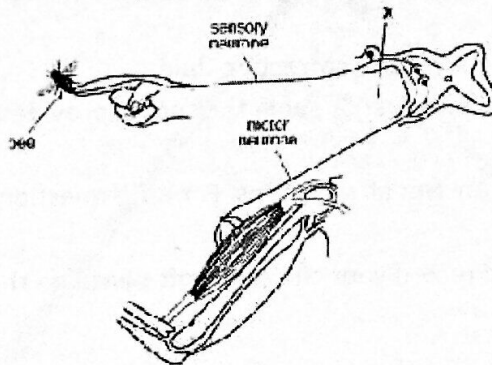
1. What is controlled by medulla in the brain?

- A. Balance
- B. Breathing
- C. Vision
- D. Memory

2. When a person is frightened which substance increases the blood sugar levels?

- A. adrenaline
- B. CO<sub>2</sub>
- C. insulin
- D. lactic acid

3. The diagram shows the part of person's nervous system that has been cut at X.



A bee stings the finger as shown,

What are the effects of this sting on person?

	pain felt	arm moved
<input checked="" type="radio"/> A	no	no
<input type="radio"/> B	no	yes
<input type="radio"/> C	yes	no
<input type="radio"/> D	yes	yes

4. What does the hypothalamus control?

- A. adrenaline secretion
- B. body temperature
- C. heart beat
- D. memory

5. Which of these four mechanisms that lower the body temperature is the slowest to occur?

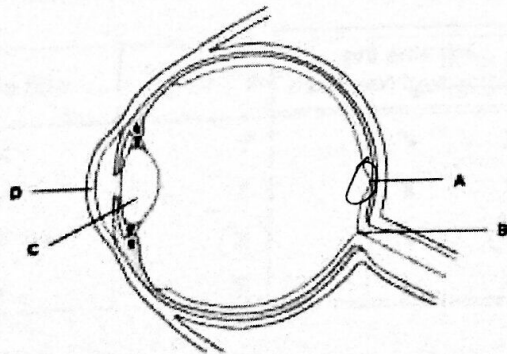
- A. dilation of surface capillaries
- B. relaxation of hair erector muscles
- C. secretion of sweat
- D. thinning subcutaneous fat layer

6. When a person is frightened which responses will occur?

- A. Adrenaline released heart beat increases eye pupils dilate
- B. adrenaline released blood glucose increases urine production increases
- C. insulin released breathing rate increases peristalsis stops
- D. insulin released eye pupils dilate saliva secretion stops

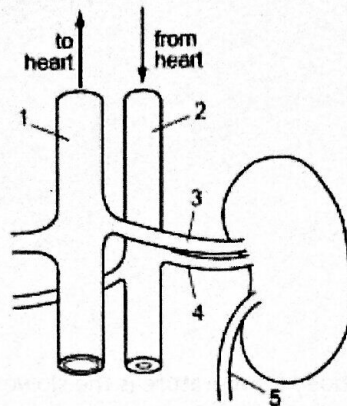
7. The diagram shows a section through the human eye.

Where will an image be detected when a person looks at an object?





8. The diagram shows a kidney and its associated vessels.



Which structures have the most and least urea concentrations?

	most	least
A	1	2
B	4	1
C	4	3
D	5	3

9. What is an example of excretion?

- A. release of adrenalin from the adrenal glands
- B. release of sweat from the sweat glands
- C. removal of carbon dioxide from the lungs
- D. removal of faeces from the alimentary canal

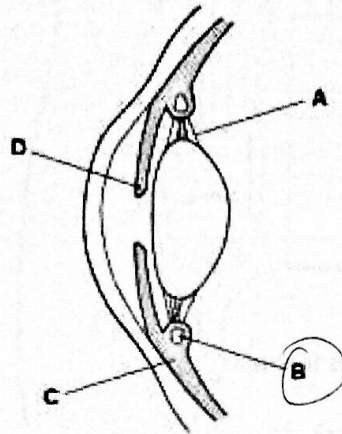
10. In a reflex action, after the hand touches a hot object, what is the role of the brain?

	receives information	initiates the withdrawal response
<input checked="" type="radio"/> A	✓	✓
B	✓	x
C	x	✓
D	x	x

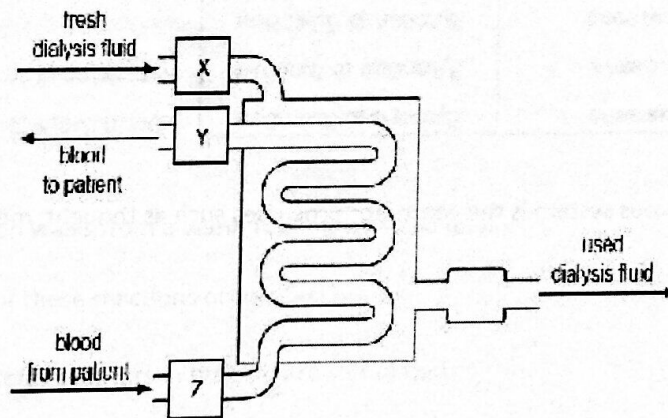


11. The diagram shows a section through a human eye.

Which structure contains the muscles which contract to produce a focused image on the retina?



12. The diagram represents a kidney dialysis machine.



What are the parts labelled X, Y and Z?

	bubble trap	roller pump	water bath for temperature control
A	X	Y	Z
B	Y	Z	X
C	Y	X	Z
D	Z	Y	X

13. When a person is cold, nerve impulses from the hypothalamus cause the skin to reduce the rate of heat loss.

What is the effect of these nerve impulses on the hair erector muscles and on the arterioles near the skin surface?

	hair erector muscles	arterioles near skin surface
<b>A</b>	contract	contract
<b>B</b>	contract	relax
<b>C</b>	relax	contract
<b>D</b>	relax	relax

14. Adrenaline is secreted quickly when a person is frightened.

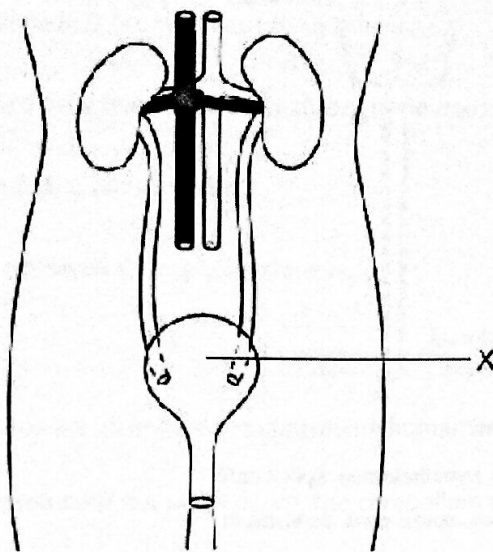
How does this affect the heart beat and the liver?

	heart beat	liver converts
<b>A</b>	decreases	glycogen to glucose
<b>B</b>	decreases	glucose to glycogen
<b>C</b>	increases	glycogen to glucose
<b>D</b>	increases	glucose to glycogen

15. Which part of the nervous system is the centre for processes such as thought, memory and judgment?

- A. cerebellum
- B. cerebrum**
- C. medulla
- D. spinal cord

16. The diagram shows the human excretory system.



What is the function of X?

- A to excrete urea
- B to produce urea
- C to produce urine
- D to store urine

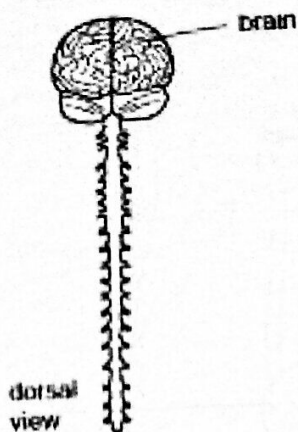
17. A person walks from a warm room into a cold one.

Which of these reactions occurs first?

- A. Cold receptors in the skin are stimulated
- B. Cooler blood reaches the brain
- C. deep arterioles in the skin dilate
- D. Shivering begins



18. The diagram shows the dorsal view of the central nervous system

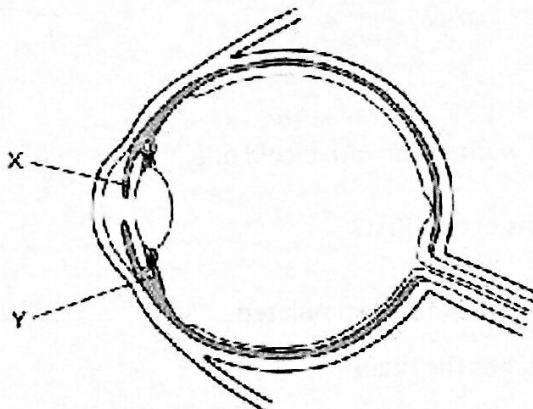


Which structures are visible?

- A cerebrum, cerebellum, hypothalamus, spinal cord
- B cerebrum, spinal nerves, spinal cord, cerebellum
- C spinal nerves, cerebrum, medulla, pituitary gland
- D spinal cord, medulla, cerebrum, hypothalamus

19. The diagram shows the human eye in section.

There are circular muscles at X and Y.



What happens to the circular muscles at X and Y when the eye focuses on a near object in bright light?

	X	Y
<input checked="" type="radio"/> A	contract	contract
B	contract	relax
C	relax	contract
D	relax	relax

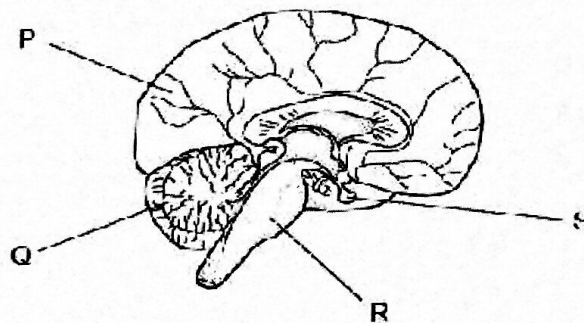
20. Which cannot be an example of excretion?

- A. Carbon dioxide is breathed out from the lungs.
- B. Undigested food leaves the body through the anus.
- C. Urea leaves the body in urine.
- D. Water is removed through the kidneys.

21. Which structures are all involved in controlling human body temperature?

- A. blood vessels near the skin surface, the cerebellum and sweat glands
- B. blood vessels near the skin surface, the hypothalamus and skeletal muscles
- C. kidneys, the cerebellum and sweat glands
- D. kidneys, the hypothalamus and skeletal muscles

22. The diagram shows a section through the brain and part of the spinal cord.

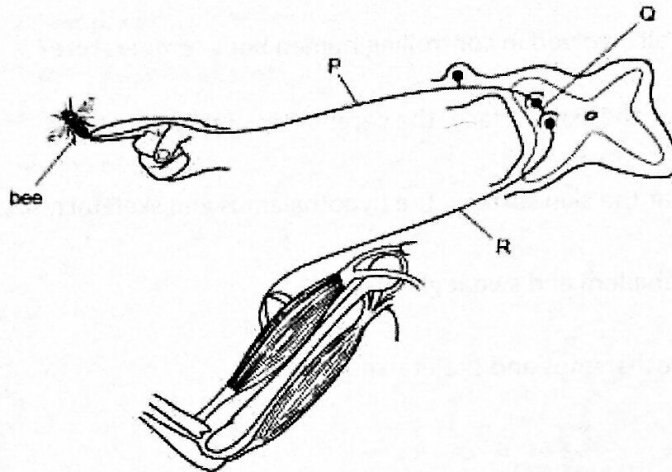


	cerebral hemisphere	cerebellum	medulla	pituitary gland
<input checked="" type="radio"/> A	P	Q	R	S
B	P	R	Q	S
C	Q	R	S	P
D	S	P	R	Q

23. Which is not controlled directly by the nervous system?

- A blood glucose concentration
- B dilation of the blood vessels
- C heart rate
- D pupil diameter in the eye

24. The diagram shows a reflex arc in which a bee sting causes the arm to be moved quickly.



If the relay neurone at Q is damaged, how will the transmission of nerve impulses in the reflex arc be affected?

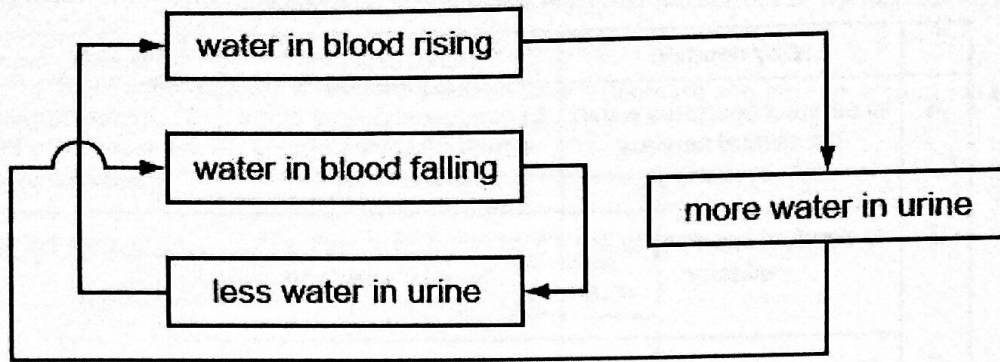
- A They cannot pass from P to Q.
- B They cannot pass from P to R.
- C They cannot pass from Q to P.
- D They cannot pass from R to Q.

25. What is not an excretory product of mammals?

- A carbon dioxide in expired air
- B undigested food in faeces
- C urea in sweat
- D urea in urine



26. The diagram refers to the control of water concentration in the blood.

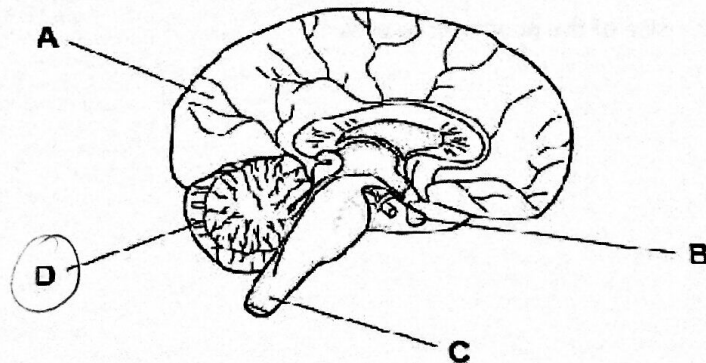


Why is this a negative feedback system?

- A. It decreases the amount of water in the blood.
- B. It increases any change in the amount of water in the blood.
- C. It increases the amount of water in the blood.
- D. It reverses any change in the amount of water in the blood.

27. The diagram represents a section through the brain and part of the spinal cord.

Which part of the brain controls balance?



28. What are the functions of the relay, motor and sensory neurones in a reflex response?




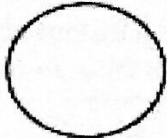
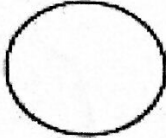

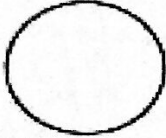

	relay neurone	motor neurone	sensory neurone
<b>A</b>	to connect neurones within the central nervous system	to conduct impulses to the effector from the central nervous system	to conduct impulses from the receptor to the central nervous system
<b>B</b>	to conduct impulses to the effector	to connect neurones within the central nervous system	to receive the stimulus
<b>C</b>	to conduct impulses from the central nervous system to the effector	to conduct impulses from the receptor to the central nervous system	to connect neurones within the central nervous system
<b>D</b>	to conduct impulses from the receptor to the central nervous system	to conduct impulses from the receptor to the central nervous system	to conduct impulses to the effector

29. What decreases as a result of adrenaline secretion?

- A. blood sugar level
- B. digestive activity**
- C. heart rate
- D. size of the pupils of the eyes

30. The circles represent the diameter of the blood vessels in the surface of the skin as the body temperature changes.

Which shows the diameter of the blood vessels after a decrease and after an increase in body temperature?

	diameter of blood vessels	
	after a decrease in body temperature	after an increase in body temperature
A		
B		
C		
D		

31. What passes through the membranes of a kidney machine?

A. protein and red blood cells

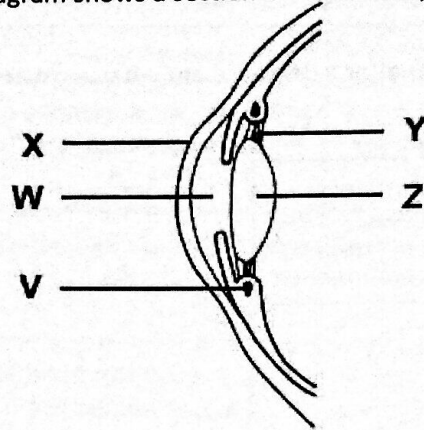
B. urea and red blood cells

C. water and protein

D. water and urea



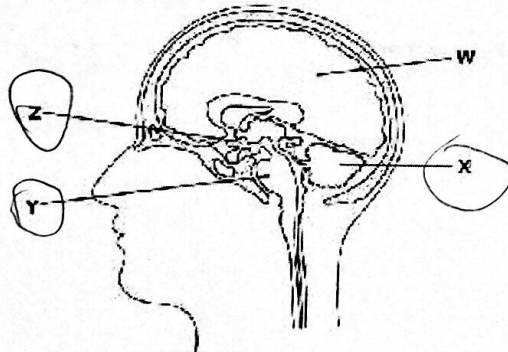
32. The diagram shows a section of a human eye focused on a near object.



Which part will change to focus on a distant object?

A	W	X	Y
B	V	X	Z
C	W	Y	Z
D	V	Y	Z

33. The diagram shows a section through the brain.



Which regions control balance, heart rate and temperature?

*heart rate balance temperature*

A	W	X	Y
B	Y	X	Z
C	W	Y	Z
D	Y	Y	Z

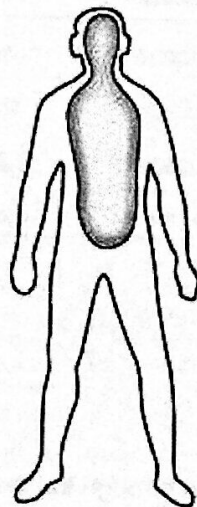
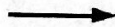
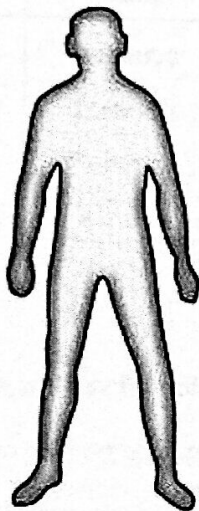
34. Urea is removed by the kidneys. What is this process called?

- A. dialysis
- B. diffusion
- C. egestion
- D. excretion

35. The diagram shows skin temperature of a human when exposed to warm air and then exposed to cold air.

human in warm air

human in cold air



key

skin temperature



above 26°C

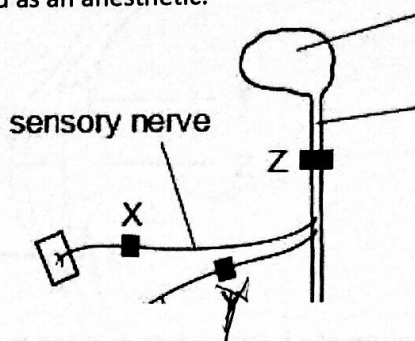


26°C or below

What causes the observed change in skin temperature on exposure to cold air?

- A. less blood flowing just below the skin
- B. less blood going to the heart and lungs
- C. more blood flowing just below the skin
- D. more blood going to the heart and lungs

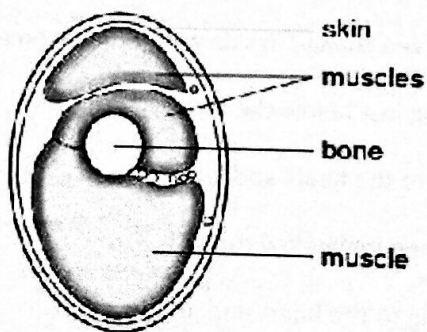
36. The diagram shows the central nervous system which has been blocked in three different places by a drug used as an anesthetic.



Of four men, one had no anesthetic block and the other three had only one anesthetic block at X, Y or Z.

One of the men can move his leg in response to a pinprick, but does not feel it. Where is the anesthetic block?

- A. block is at X
  - B. block is at Y
  - C. block is at Z
  - D. no block
37. The diagram shows a cross-section through the arm of a human



What is the name of the bone?

- A. humerus
- B. radius
- C. scapula
- D. ulna



38. What happens to these structures when focusing on an object near the eye?

	ciliary muscles	suspensory ligaments
A	contract	tighter
B	contract	looser
C	relax	tighter
D	relax	looser

39. What is the correct sequence of the bones in the arm of a mammal, from the hand to the shoulder?

	hand	→	shoulder
A	humerus	radius	scapula
B	humerus	scapula	radius
C	radius	humerus	scapula
D	scapula	radius	humerus

40. Which is a function of adrenalin?

- A. to convert glycogen into glucose
- B. to decrease the breathing rate
- C. to increase the rate of peristalsis in the ileum
- D. to stimulate cells of the liver to take up glucose