

CARIBBEAN EXAMINATIONS COUNCIL

SECONDARY EDUCATION CERTIFICATE
EXAMINATION

SPECIMEN
MULTIPLE CHOICE QUESTIONS
FOR

HUMAN AND SOCIAL BIOLOGY

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

Each item in this test has four suggested answers lettered (A), (B), (C), (D). Read each item you are about to answer and decide which choice is best.

Sample Item

Abnormally high blood pressure is called

- (A) hypotension
- (B) distension
- (C) hypertension
- (D) hyperglycaemia

Sample Answer

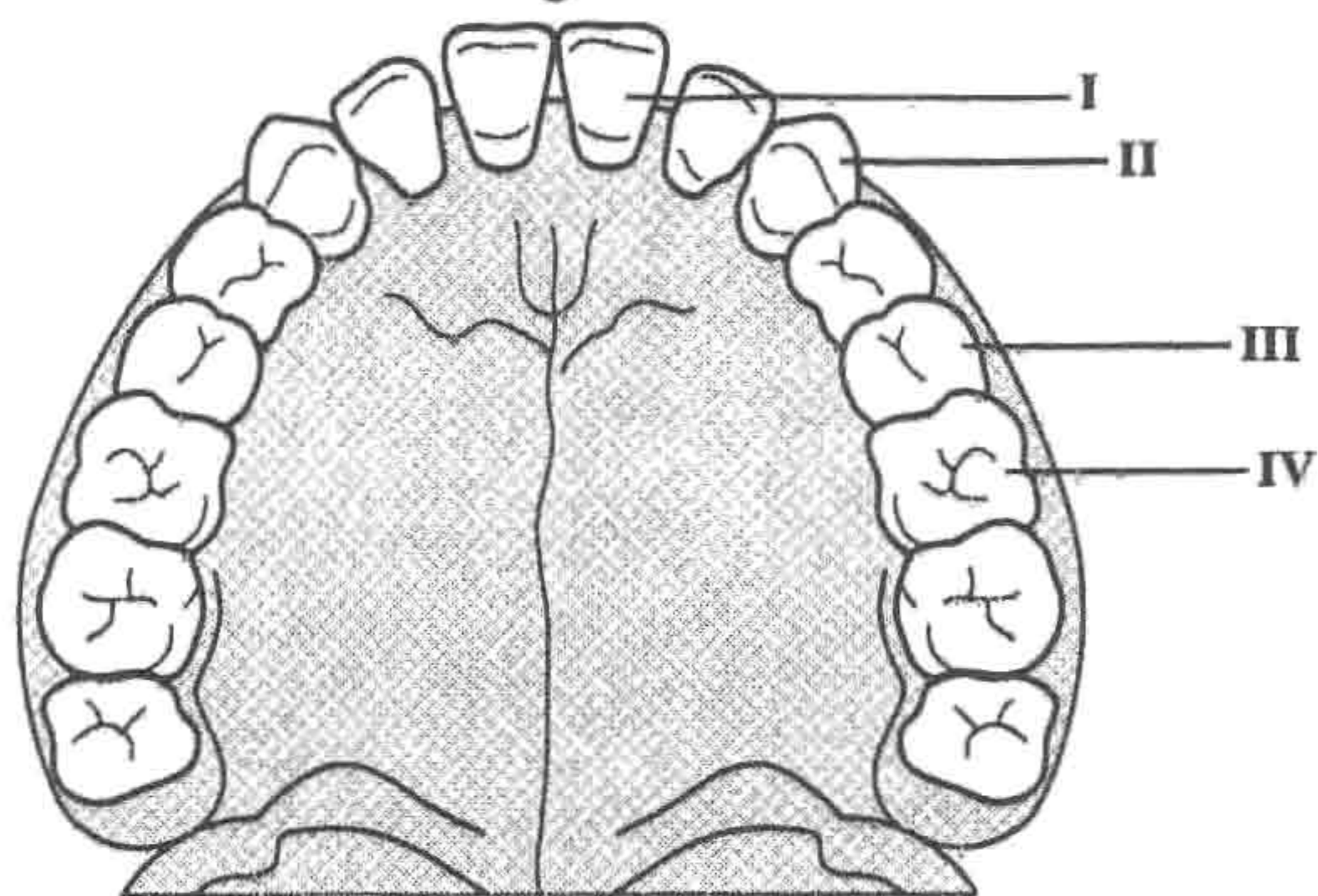


The best answer to this item is “hypertension”, so answer space (C) has been shaded.

1. All living organisms carry out certain activities which make them different from inanimate objects.
- Which of the following lists shows three activities of all living organisms?
- (A) Movement, decay, synthesis
(B) Respiration, nutrition, preservation
(C) Exercise, irritability, metabolism
(D) Reproduction, excretion, growth
2. Which of the following cell organelles makes proteins for the cell?
- (A) Nucleus
(B) Ribosome
(C) Mitochondrion
(D) Cell membrane
3. The initial energy of a food chain comes from
- (A) the sun
(B) the plant
(C) chlorophyll
(D) carbon dioxide
4. The function of nitrifying bacteria is to convert
- (A) nitrates to protein
(B) nitrites to nitrates
(C) nitrogen gas to urea
(D) nitrogen gas to nitrates
5. Night blindness is caused by a deficiency of
- (A) vitamin A
(B) vitamin B
(C) vitamin C
(D) vitamin D
6. Which of the following foods would MOST likely prevent constipation?
- I. White bread
II. Carrots
III. Water
IV. Cabbage
- (A) I and II only
(B) III and IV only
(C) II, III and IV only
(D) I, II, III and IV
7. Which of the following foods, when consumed in excess, does NOT contribute to obesity?
- (A) Milk
(B) Protein
(C) Roughage
(D) Carbohydrate
8. Which of the following is a definitive sign of malnutrition?
- (A) Shiny hair
(B) Albinism
(C) Dwarfism
(D) Overweight
9. Which of the following formulae is used to determine body mass index (BMI)?
- (A) $\frac{\text{Height}}{\text{Weight}}$
(B) $\frac{\text{Height}}{\text{Weight}^2}$
(C) $\frac{\text{Height}^2}{\text{Weight}}$
(D) $\frac{\text{Height}^2}{\text{Weight}^2}$

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Item 10 refers to the diagram below, showing the arrangement of teeth in the upper jaw of an adult human being.



10. Which of the following labelled parts shows an incisor?

- (A) I
- (B) II
- (C) III
- (D) IV

11. In which part of the tooth are nerves found?

- (A) Cement
- (B) Dentine
- (C) Enamel
- (D) Pulp cavity

12. An enzyme shows optimum activity at pH 2.5. In which part of the alimentary canal will this enzyme be MOST active?

- (A) Ileum
- (B) Mouth
- (C) Stomach
- (D) Duodenum

13. What is the end product of the digestion of carbohydrate?

- (A) Starch
- (B) Glucose
- (C) Glycerol
- (D) Amino acid

14. Which of the following are egested by the human body?

- I. Faeces
- II. Products of metabolism
- III. Undigested food materials

- (A) I and II only
- (B) I and III only
- (C) II and III only
- (D) I, II and III

15. The trachea is lined with hair-like structures called

- (A) cilia
- (B) cells
- (C) villi
- (D) flagella

16. Which of the following BEST describes what happens during exhalation?

	Ribcage	Diaphragm
(A)	Moves up	Flattens
(B)	Moves down	Curves upward
(C)	Moves down and in	Curves upward
(D)	Moves up and out	Does not move

17. Which of the following statements are true of aerobic respiration?

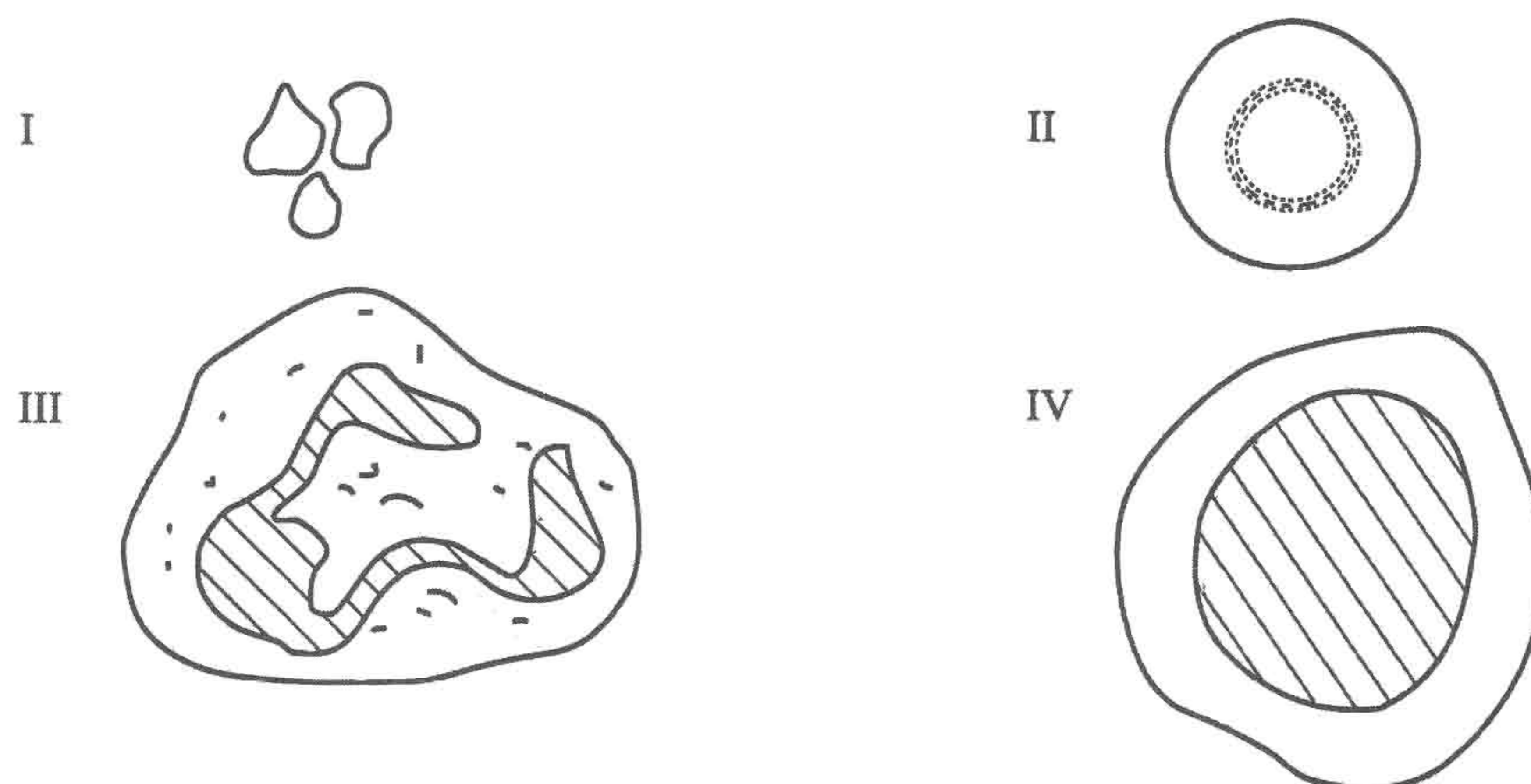
- I. Produces a large amount of energy
- II. Carbon dioxide is always produced
- III. Produces lactic acid

- (A) I and II only
- (B) I and III only
- (C) II and III only
- (D) I, II and III

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18. Tar is a component of cigarette smoke. What is the MOST likely effect of tar in the body of a cigarette smoker?
- (A) An increase in the absorption of oxygen
 - (B) A reduction of oxygen going to the blood
 - (C) A reduction of carbon monoxide in the body
 - (D) An increase in the amount of carbon dioxide leaving the blood
19. The blood vessel that takes blood from the heart to lungs is called the
- (A) aorta
 - (B) vein cava
 - (C) pulmonary vein
 - (D) pulmonary artery

Item 20 refers to the following diagrams which show structures found in the blood.



20. Which structure is phagocytic in nature?
- (A) I
 - (B) II
 - (C) III
 - (D) IV
-
21. Zena cuts her finger while peeling an orange. Which of the following components of the blood will assist in reducing bleeding?
- (A) Haemoglobin
 - (B) Blood platelets
 - (C) Red blood cells
 - (D) White blood cells
22. Which of the following results in coronary artery disease?
- (A) Arthritis
 - (B) Cirrhosis
 - (C) Phagocytosis
 - (D) Artherosclerosis

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23. The function of the lymphatic system in the human body is to
- (A) bring nutrients back to the body
 - (B) carry the tissue fluid out of the body
 - (C) remove excess fluid and foreign material from the tissue spaces
 - (D) remove poisonous substances and other waste materials from the blood
24. Which of the following is NOT a function of the human skeleton?
- (A) Produces vitamin D
 - (B) Assists in breathing
 - (C) Produces blood cells
 - (D) Protects the spinal cord
25. Which of the following are functions of cartilage?
- I. Forms a barrier between bones
 - II. Lengthens the space between bones
 - III. Reduces friction between bones
 - IV. Prevents shock between bones
- (A) I and II only
 - (B) I and IV only
 - (C) II and III only
 - (D) III and IV only
26. Which of the following pairs of bones forms a ball and socket joint?
- (A) Femur and pelvic girdle
 - (B) Scapula and clavicle
 - (C) Tarsals and metatarsals
 - (D) Carpals and metacarpals
27. Which of the following pairs of activities occurs when an arm is flexed?
- (A) Biceps relaxes and pulls the radius
 - (B) Biceps contracts and pulls the radius
 - (C) Triceps relaxes and pulls the ulna
 - (D) Triceps contracts and pulls the ulna
28. Which of the following tasks is or are performed by the kidneys?
- I. Elimination of toxins
 - II. Getting rid of all metabolic waste
 - III. Maintaining blood composition
- (A) I only
 - (B) II only
 - (C) I and III only
 - (D) I, II and III
29. Which of the following are functions of skin in human beings?
- I. Produces hair
 - II. Excretes sweat
 - III. Protects from injury
 - IV. Produces body temperature
- (A) I and II only
 - (B) I and III only
 - (C) I, II and III only
 - (D) I, II, III and IV
30. Which of the following substances reduces blood sugar in the human body?
- (A) Insulin
 - (B) Glycogen
 - (C) Glucagon
 - (D) Adrenalin
31. Which of the following actions occurs when a person feels cold?
- (A) Blood vessels dilate.
 - (B) Blood vessels constrict.
 - (C) Hairs on the skin lie flat.
 - (D) Blood vessels move closer to the skin.

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32. Which structure of the brain is responsible for the regulation of water content in the blood?

- (A) Cerebrum
- (B) Cerebellum
- (C) Hypothalamus
- (D) Pituitary gland

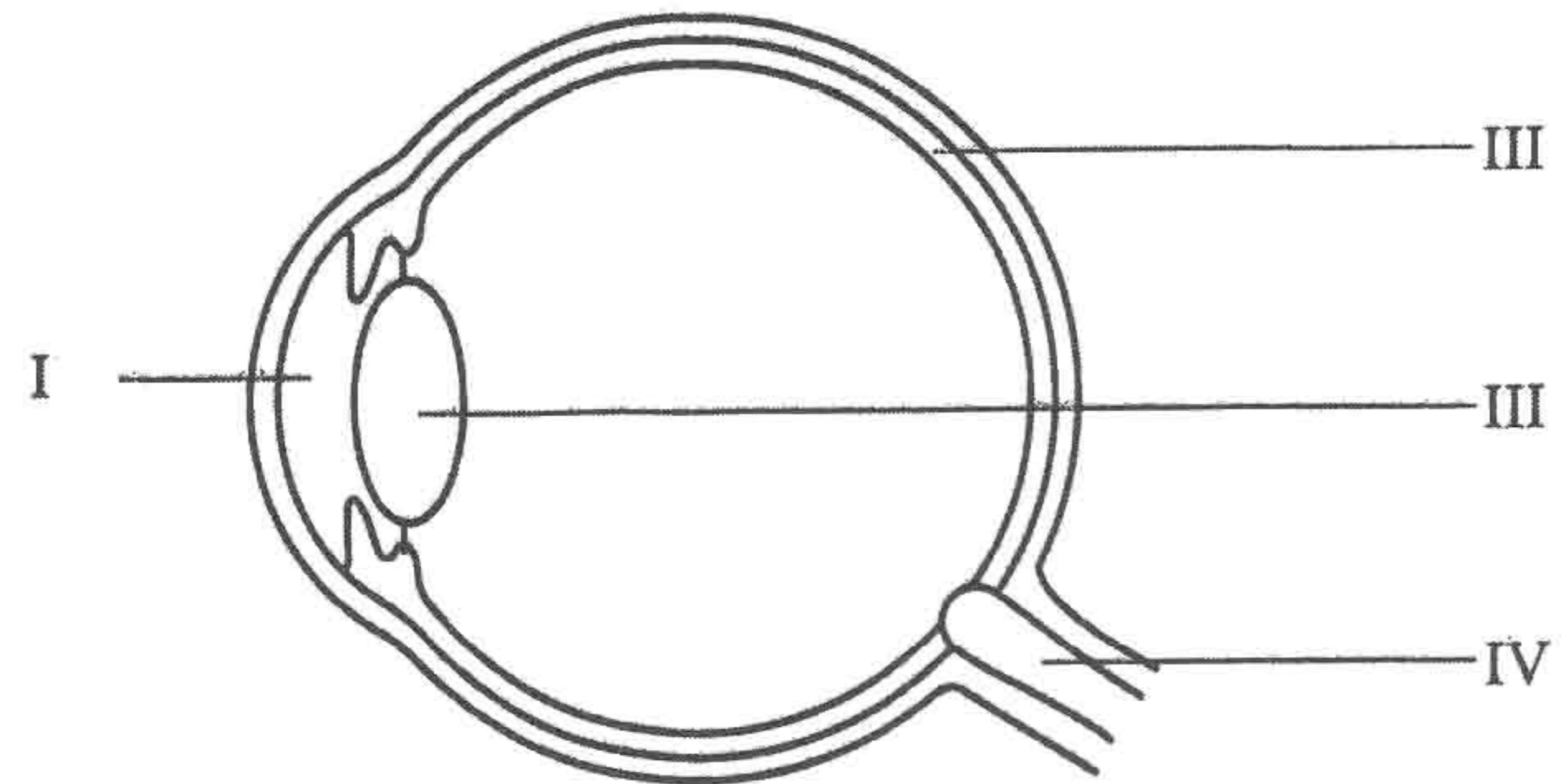
33. The long process of a nerve cell which conducts impulses toward a cell body is called

- (A) axon
- (B) dendron
- (C) ganglia
- (D) dendrites

34. What is the correct path of travel for an impulse from the receptor to the effector in a reflex action?

- (A) Axon - sensory neurone - intermediate neurone - motor neurone - axon
- (B) Axon - motor neurone - intermediate neurone - sensory neurone - dendron
- (C) Dendron - motor neurone - intermediate neurone - sensory neurone - axon
- (D) Dendron - sensory neurone - intermediate neurone - motor neurone - axon

Item 35 refers to the following diagram of the eye.



35. Which of the labelled parts contains cells called rods and cones?

- (A) I
- (B) II
- (C) III
- (D) IV

36. Andrea leaves a brightly lit area and ventures into a dark closet. Which of the following changes occur in the eye?

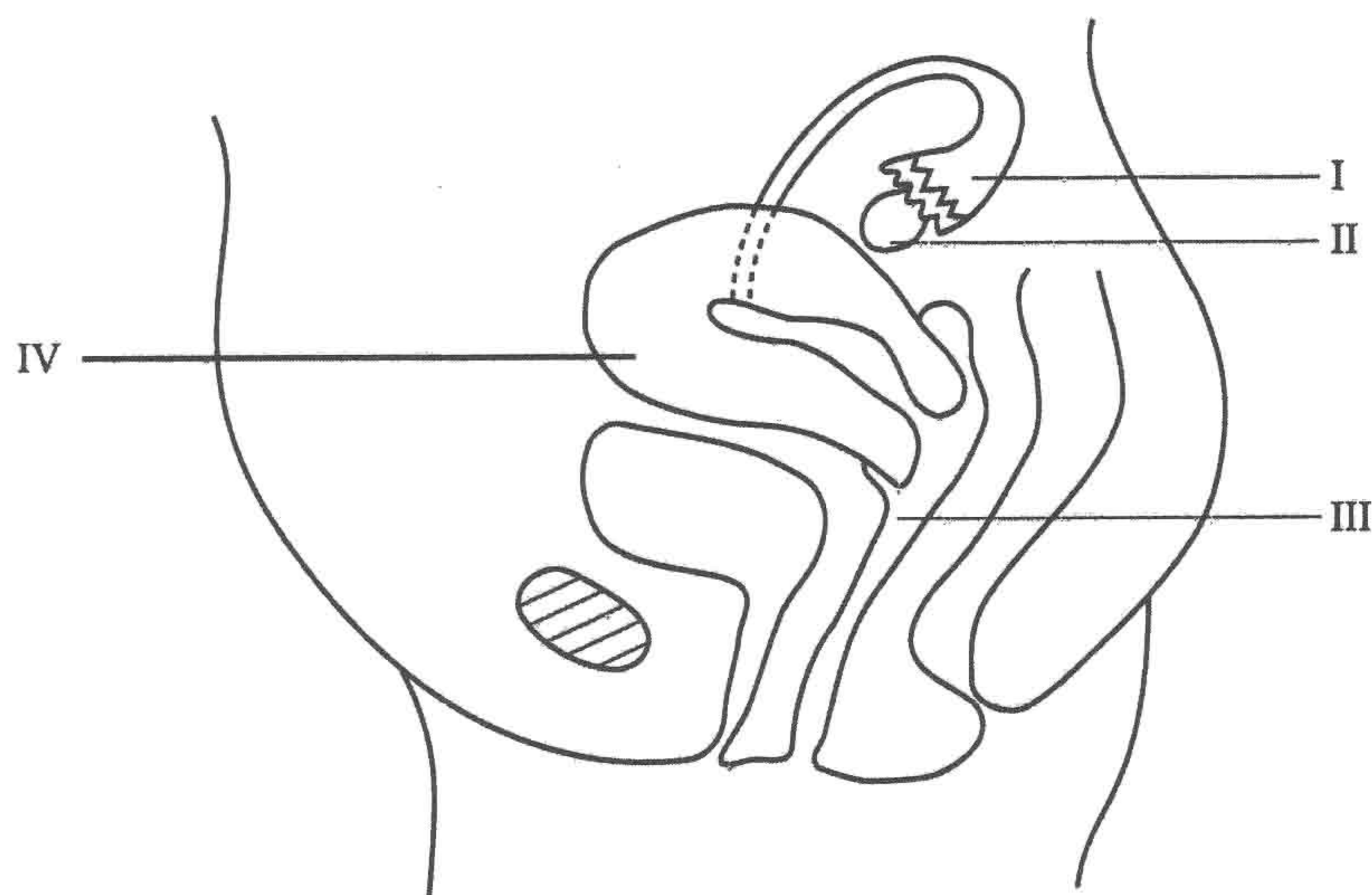
- (A) Radial muscles of the iris contract and the pupils become larger.
- (B) Circular muscles of the iris contract and the pupils increase in size.
- (C) Pupils decrease in size because the radial muscles in the iris relax.
- (D) Pupils decrease in size due to the contraction of the circular muscles of the iris.

37. Which of the following shows the correct path for sperms to exit the body?

- (A) Testis → epididymis → vas deferens → urethra
- (B) Epididymis → testis → vas deferens → urethra
- (C) Vas deferens → epididymis → testis → urethra
- (D) Vas deferens → testis → epididymis → urethra

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Item 38 refers to the following diagram of the female reproductive system.



38. Which labelled part facilitates the development of the embryo?

- (A) I
- (B) II
- (C) III
- (D) IV

39. Fertilization occurs when

- (A) implantation occurs
- (B) the sperm enters the oviduct
- (C) the sperm fuses with the ovum
- (D) semen is expelled into the vagina

41. Which of the following is NOT true about mitosis?

- (A) Ensures variation
- (B) Produces identical cells
- (C) Occurs in normal body cells
- (D) Results in body growth and development

40. The contraceptive pill prevents ovulation by

- (A) increasing oestrogen levels
- (B) decreasing progesterone levels
- (C) facilitating the secretion of follicle stimulating hormone
- (D) preventing the release of follicle stimulating hormone

42. Which of the following processes occur during meiosis?

- I. Two cell divisions
 - II. Production of four diploid cells
 - III. Movement of chromosomes
 - IV. Creation of spindle
- (A) I and II only
 - (B) II and III only
 - (C) I, III and IV only
 - (D) I, II, III and IV

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43. How many chromosomes are present in the nucleus of a muscle cell in a baby born with Down's Syndrome?
- (A) 23
(B) 24
(C) 46
(D) 47
44. Two normal parents have an albino child. If 'A' represents the normal skin pigment and 'a' represents the albino condition. What may be the possible genotype of the parents?
- (A) aa x aa
(B) Aa x Aa
(C) AA x Aa
(D) AA x AA
45. The World Health Organisation defines good health to include
- (A) the absence of disease
(B) access to potable water
(C) Health Insurance coverage
(D) physical, mental and social well-being
46. Which of the following diseases may be described as chronic?
- (A) Dengue
(B) Cholera
(C) Diabetes
(D) Typhoid
47. Which of the following signs or symptoms occur during an asthmatic attack?
- (A) Wheezing, coughing, vomiting
(B) Shock, coughing, shortness of breath
(C) Chest pains, bronchospasms, vomiting
(D) Shortness of breath, wheezing, bronchospasms
48. Which of the following vectors transmits dengue haemorrhagic fever?
- (A) Bat
(B) Rat
(C) Anopheles mosquito
(D) Aedes aegypti mosquito
49. Which of the following organisms causes malaria?
- (A) Virus
(B) Fungus
(C) Protozoan
(D) Bacterium
50. The correct sequence of the stages in the life cycle of a mosquito is?
- (A) adult, egg, larva, pupa
(B) egg, pupa, larva, adult
(C) larva, pupa, egg, adult
(D) pupa, adult, larva, egg
51. Anthony is vaccinated against a disease on Monday and the antibody concentration increases rapidly. However, there is a gradual decrease in antibody concentration over the next few days. What type of immunity does Anthony experience?
- (A) Active
(B) Passive artificial
(C) Active artificial
(D) Naturally acquired
52. Type 1 diabetes is treated medically by injections of
- (A) insulin
(B) glucagon
(C) thyroxine
(D) adrenaline

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53. Which of the following activities lead to air pollution?
- I. Burning of rubbish
 - II. Use of pesticides in agriculture
 - III. Release of industrial gases into the atmosphere
 - IV. Release of household detergents into the soil
- (A) I and II only
(B) I and III only
(C) II and III only
(D) III and IV only
54. Water changes into water vapour by the process of
- (A) condensation
(B) precipitation
(C) evaporation
(D) percolation
55. The correct sequence of the processes in the large-scale purification of water is
- (A) screening, sedimentation, filtration, chlorination
(B) chlorination, screening, filtration, sedimentation
(C) screening, sedimentation, filtration, chlorination
(D) filtration, screening, sedimentation, chlorination
56. Which of the following is a sign or symptom of lead poisoning?
- (A) Bronchitis
(B) Lung cancer
(C) Eye irritation
(D) Brain damage
57. Which of the following activities can lead to eutrophication?
- I. Farmers applying fertilizers to crops
 - II. Releasing detergents, sewage and industrial waste into waterways
 - III. Bacteria decomposing organic matter from sewage and other sources
- (A) I only
(B) I and II only
(C) II and III only
(D) I, II and III
58. Which of the following statements is true about pit latrines?
- (A) They should be dug one metre deep.
(B) Disinfectants should be added to the pit.
(C) They should not be placed near wells.
(D) The best soil type for siting a pit latrine is clay.
59. The bottom liner of a landfill serves to prevent
- (A) the trash from flying away
(B) rats and flies from breeding
(C) gases from escaping into the atmosphere
(D) liquid from the trash from drying out
60. Mr Murphy puts all his soda cans in a bin for cans only. Which of the following BEST describes the methods he is employing to control solid waste volume.
- (A) Biodegradable
(B) Recycle
(C) Reduce
(D) Reuse

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.

CARIBBEAN EXAMINATIONS COUNCIL

HEADQUARTERS

CARIBBEAN SECONDARY EDUCATION CERTIFICATE

HUMAN AND SOCIAL BIOLOGY

PAPER 01

KEY

CARIBBEAN EXAMINATIONS COUNCIL

**SECONDARY EDUCATION CERTIFICATE
EXAMINATION**

HUMAN AND SOCIAL BIOLOGY

SPECIMEN PAPER 2009

Item o.	Key
1	D
2	B
3	A
4	B
5	A
6	C
7	C
8	D
9	B
10	A
11	D
12	C
13	B
14	B
15	A
16	C
17	A
18	B
19	D
20	C
21	B
22	D
23	C
24	A
25	D
26	A
27	B
28	C
29	C
30	A

Item o.	Key
31	B
32	C
33	B
34	A
35	B
36	A
37	A
38	D
39	C
40	D
41	A
42	C
43	D
44	B
45	D
46	C
47	D
48	D
49	C
50	A
51	B
52	A
53	B
54	C
55	A
56	D
57	D
58	C
59	D
60	B