



FORM TP 2022080

**CANDIDATE – PLEASE NOTE!**

PRINT your name on the line below and return this booklet with your answer sheet. Failure to do so may result in disqualification.

TEST CODE **01253010**

MAY/JUNE 2022

**CARIBBEAN EXAMINATIONS COUNCIL  
CARIBBEAN SECONDARY EDUCATION CERTIFICATE®  
EXAMINATION**

**HUMAN AND SOCIAL BIOLOGY**

**Paper 01 – General Proficiency**

*1 hour 15 minutes*

**30 MAY 2022 (p.m.)**

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY.**

1. This test consists of 60 items. You will have 1 hour and 15 minutes to answer them.
2. In addition to this test booklet, you should have an answer sheet.
3. 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.
4. On your answer sheet, find the number which corresponds to your item and shade the space having the same letter as the answer you have chosen. Look at the sample item below.

Sample Item

Abnormally high blood pressure is called

Sample Answer

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



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

5. If you want to change your answer, erase it completely before you fill in your new choice.
6. When you are told to begin, turn the page and work as quickly and as carefully as you can. If you cannot answer an item, go on to the next one. You may return to that item later.
7. Figures are not necessarily drawn to scale.

**DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.**

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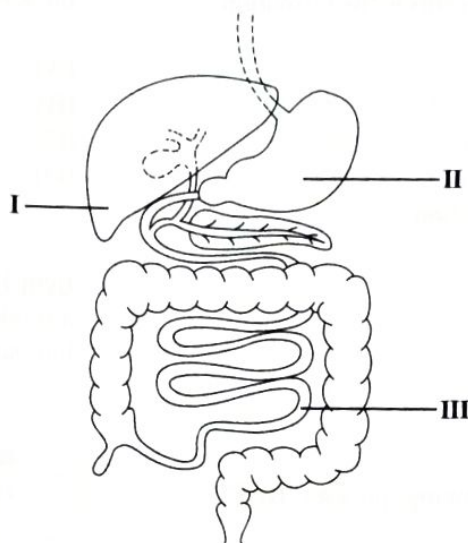
Item 1 refers to the following aquatic food chain.

Phytoplankton → zooplankton → fish → water bird

1. The producer in this food chain is the
  - (A) fish
  - (B) water bird
  - (C) zooplankton
  - (D) phytoplankton
2. Which of the following cell organelles allows substances to pass in and out of the cell?
  - (A) Nucleus
  - (B) Vacuole
  - (C) Cytoplasm
  - (D) Cell membrane
3. Which of the following is an example of a terrestrial food chain?
  - (A) Seaweed → fish → seagull
  - (B) Pondweed → tadpole → fish
  - (C) Plant → grasshopper → bird
  - (D) Pondweed → tadpole → duck
4. An example of diffusion is the movement of
  - (A) sodium across cell membranes
  - (B) glucose from the digestive tract to the villi
  - (C) oxygen from the alveoli to capillaries
  - (D) sucrose from phloem tubes to companion cells
5. The site of photosynthesis in plants is the
  - (A) chloroplast
  - (B) stomata
  - (C) stem
  - (D) root
6. Which of the following vitamins can be produced by the skin as well as obtained from food?
  - (A) Vitamin A
  - (B) Vitamin B
  - (C) Vitamin C
  - (D) Vitamin D
7. Which of the following reagents gives a positive test for the **main** food present in a slice of baked potato?
  - (A) Biuret
  - (B) Ethanol
  - (C) Iodide solution
  - (D) Benedict's solution
8. Which of the following teeth aid in grinding food into smaller pieces?
  - (A) Incisors and premolars
  - (B) Molars and premolars
  - (C) Incisors and canines
  - (D) Canines and molars



Item 9 refers to the following diagram of part of the human digestive system.



9. Which sequence correctly matches each numbered structure to its function?

	Secretes Gastric Juice	Produces Bile	Absorbs Soluble End products
(A)	I	II	III
(B)	I	III	II
(C)	II	I	III
(D)	II	III	I

10. Which of the following statements is NOT true about the ileum?

- (A) It is richly supplied by blood capillaries.
- (B) The walls secrete enzymes which complete digestion.
- (C) It contains hundreds of minute projections called microvilli.
- (D) It has a small surface area for the absorption of products of digestion.

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11. Which of the following represents the correct sequence of events in the formation of a dental cavity?

- I. Abscess
- II. Dentine decay
- III. Enamel decay
- IV. Plaque formation

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

12. Which of the following phrases BEST describes egestion?

- (A) Removal of salts in bile
- (B) Removal of metabolic waste from the body
- (C) Removal of undigested food from the alimentary canal
- (D) Build-up of simple molecules produced during digestion

13. Kwashiorkor is a deficiency disease caused by a lack of

- (A) fats
- (B) protein
- (C) glycogen
- (D) carbohydrates

14. Which of the following vitamins is NOT fat soluble?

- (A) Vitamin A
- (B) Vitamin C
- (C) Vitamin D
- (D) Vitamin E

Item 15 refers to the following drawing of a model used to demonstrate breathing in humans.



15. Which of the labelled parts represents the diaphragm?

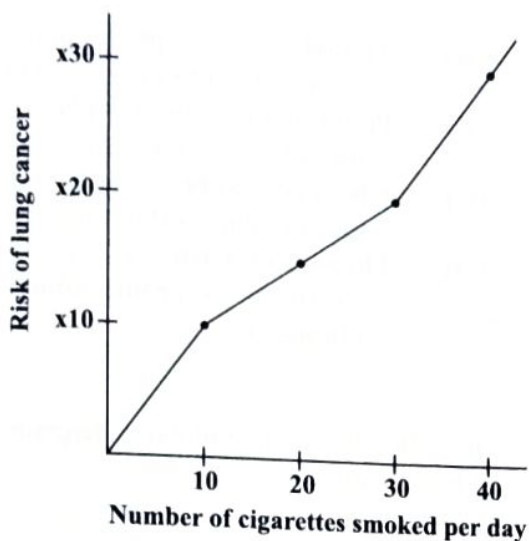
- (A) I
- (B) II
- (C) III
- (D) IV

16. Which part of the tooth prevents wear and is resistant to decay?

- (A) Dentine
- (B) Enamel
- (C) Cement
- (D) Crown



Item 17 refers to the following graph.



17. Which of the following can be deduced from the graph?

- (A) As the number of cigarettes smoked per day increases, the risk of getting lung cancer increases.
- (B) As the number of cigarettes smoked per day increases, the risk of getting lung cancer decreases.
- (C) As the number of cigarettes smoked per day decreases, the risk of getting lung cancer increases.
- (D) When 30 cigarettes are smoked per day, the risk of getting lung cancer increases ten times.

18. Which of the following BEST completes the equation for **aerobic** respiration?

glucose + oxygen →

- (A) carbon dioxide + water
- (B) carbon dioxide + water + energy
- (C) carbon monoxide + water + energy
- (D) carbon monoxide + lactic acid + energy

19. During respiration, the release of energy in a cell occurs when

- (A) ATP is converted to ADP
- (B) ADP is converted to ATP
- (C) ADP is converted to lactic acid
- (D) ATP and oxygen form oxyhaemoglobin

20. Which of the following components of cigarette smoke reduces the oxygen-carrying capacity of the blood?

- (A) Tar
- (B) Nicotine
- (C) Carbon dioxide
- (D) Carbon monoxide

Item 21 refers to the following diagram of a cell.



21. The diagram represents a

- (A) liver cell
- (B) phagocyte
- (C) lymphocyte
- (D) red blood cell



22. Which of the following statements BEST describes the lymphatic system?

- (A) It consists of lymph and tissue fluid only.
- (B) It has a very small role to play in fighting off microorganisms.
- (C) It is a circulatory system whose main function is to transport fats.
- (D) It consists of tissue fluid, lymph and plasma, and is the second largest circulatory system in man.

23. The left side of the heart has a thicker muscular wall in order to

- (A) pump blood to the lungs
- (B) receive blood from the lungs
- (C) pump blood to the rest of the body
- (D) receive blood from the rest of the body

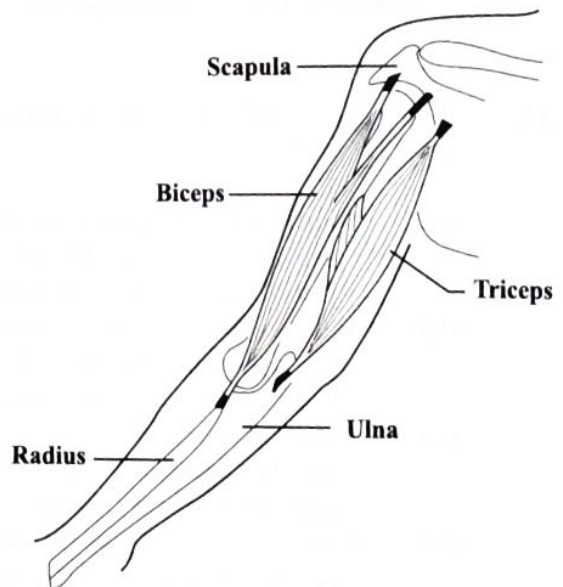
24. High blood pressure MOST likely leads to

- (A) cardiac problems
- (B) stomach ulcers
- (C) liver damage
- (D) lung damage

25. Which sequence of events needs to occur for a blood clot to be formed?

- (A) Thromboplastin → prothrombin → thrombin → fibrinogen → fibrin
- (B) Prothrombin → thromboplastin → thrombin → fibrinogen → fibrin
- (C) Fibrinogen → fibrin → thrombin → prothrombin → thromboplastin
- (D) Thromboplastin → thrombin → fibrin → prothrombin → fibrinogen

Item 26 refers to the following diagram of a human arm.

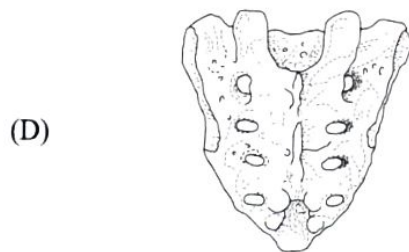
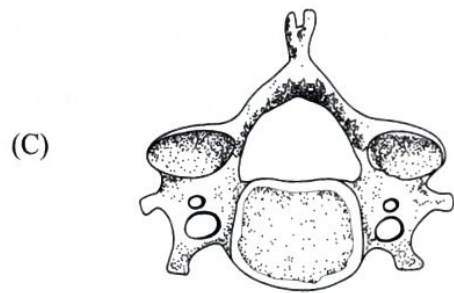
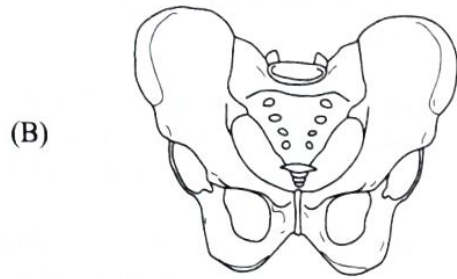
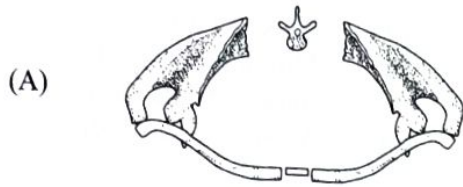


26. When the arm is bent or flexed, the

- (A) triceps shortens
- (B) scapula is pulled down
- (C) triceps pulls on the ulna
- (D) biceps pulls on the radius



27. Which of the following diagrams represents the pelvic girdle?



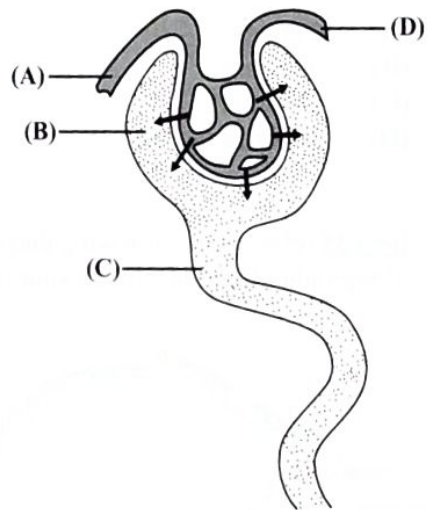
28. The pair of bones that rotates the MOST while manually sharpening a pencil is the

- (A) radius and ulna
- (B) tibia and fibula
- (C) pelvis and femur
- (D) humerus and scapula

29. The function of the marrow in long bones is to

- (A) store iron
- (B) reduce friction
- (C) make blood plasma
- (D) make red blood cells

Items 30 and 31 refer to the following simplified diagram of a kidney tubule.



In answering Items 30 and 31, each labelled part may be used once, more than once or not at all.

30. Which labelled part collects filtrate from the glomerulus?

31. Which labelled part brings blood to the glomerulus?

32. Liam notices that his face is flushed (red) after playing football. Which of the following processes causes his face to be flushed?

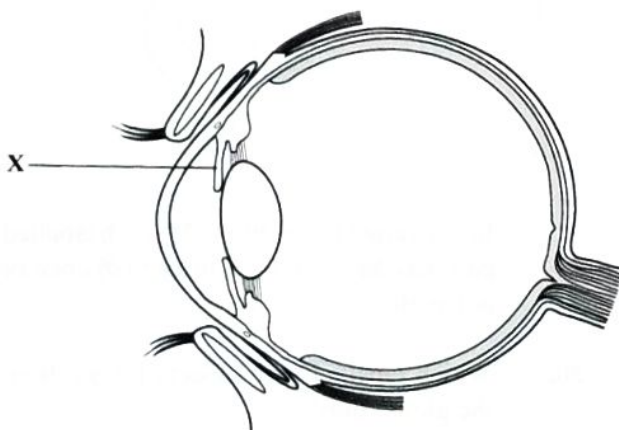
- (A) Insulation
- (B) Evaporation
- (C) Vasodilation
- (D) Vasoconstriction

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33. Which of the following occurs when blood sugar levels rise above normal?
- (A) Adrenalin secretion is increased.
  - (B) Adrenalin secretion is inhibited.
  - (C) Insulin secretion is inhibited.
  - (D) Insulin secretion is increased.
34. Which of the following is an involuntary action?
- (A) Eating
  - (B) Walking
  - (C) Breathing
  - (D) Riding a bicycle
35. Which of the following are examples of effectors?
- (A) Eyes and ears
  - (B) Muscles and glands
  - (C) Nerves and dendrites
  - (D) Axons and cell bodies
36. Which of the following statements is NOT true about the endocrine and nervous systems?
- (A) They both respond to stimuli.
  - (B) They are both responsible for co-ordination and control of the body.
  - (C) They both have specialized cells for transmitting and receiving information.
  - (D) They both have the same response time for transmitting and receiving information.

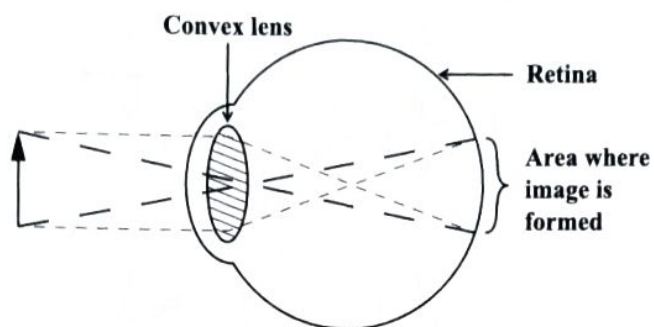
Item 35 refers to the following diagram of a longitudinal section through a human eye.



35. The part labelled X is the
- (A) iris
  - (B) cornea
  - (C) ciliary muscle
  - (D) circular muscle



Item 38 refers to the following diagram which shows light rays passing through the pupil of the eye.

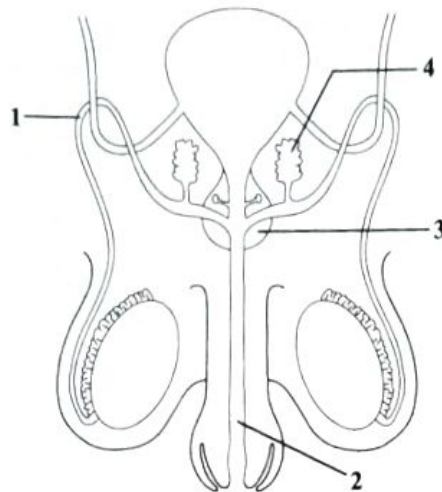


38. The image that is formed is
- (A) inverted
  - (B) not inverted
  - (C) formed behind the retina
  - (D) formed in front of the retina
39. Fertilization occurs in the oviduct when
- (A) sperms are released
  - (B) the ovum is released
  - (C) sexual intercourse takes place
  - (D) the sperm fuses with the ovum

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**Item 40** refers to the following diagram which represents the front view of the male reproductive system.



40. Which of the following correctly identifies the structures labelled 1, 2, 3 and 4?

	1	2	3	4
(A)	Sperm duct	Prostate gland	Seminal vesicle	Urethra
(B)	Prostate gland	Seminal vesicle	Urethra	Sperm duct
(C)	Sperm duct	Urethra	Prostate gland	Seminal vesicle
(D)	Urethra	Sperm duct	Seminal vesicle	Prostate gland

41. Sexual reproduction is defined as the

- (A) fusion of zygotes
- (B) fusion of gametes
- (C) fission of gametes
- (D) production of offspring by mitosis

**Item 43** refers to the following information.

The following genotypes are given for two parents, both of whom can roll their tongues.

Father	Mother
Tt	TT

42. Which of the following methods of birth control is LEAST effective in preventing pregnancy?

- (A) Barrier
- (B) Natural
- (C) Surgical
- (D) Hormonal

43. Which of the following genotypes is/are NOT possible for any of their offspring?

- I. TT
- II. Tt
- III. tt

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

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44. Which of the following statements about meiosis is true?

- (A) It occurs in the uterus.
- (B) Four daughter cells are produced.
- (C) It produces genetically identical cells.
- (D) Daughter cells have the same number of chromosomes as the parent cell.

45. In which of the following structures is an allele for eye colour located?

- (A) Chromosome
- (B) Mitochondrion
- (C) Golgi apparatus
- (D) Endoplasmic reticulum

46. Which of the following is an example of genetic engineering?

- (A) Using stem cells to produce organs
- (B) Tissue culture in banana production
- (C) Cloning of high-producing animals
- (D) Production of insulin by *E. coli* bacteria

47. Antibiotics are chemicals which can safely be taken into the body. They do not harm human cells but they destroy

- (A) fungi
- (B) moulds
- (C) viruses
- (D) bacteria

48. What type of immunity is acquired from the antibodies that are produced when a vaccine is administered?

- (A) Artificial active
- (B) Artificial passive
- (C) Natural acquired
- (D) Natural passive

Item 49 refers to the following information.

- I. It is caused by a bacterium.
- II. Persons practising poor hygiene are more susceptible.
- III. It can be fatal without medical treatment.
- IV. It involves the formation of ulcers.

49. Which statements are true about cholera?

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

50. Seema has the following signs/symptoms: constriction of bronchial tubes, coughing and wheezing. She is MOST likely suffering from

- (A) asthma
- (B) malaria
- (C) typhoid
- (D) tuberculosis

51. The *Anopheles* mosquito is known for the spread of

- (A) zika
- (B) malaria
- (C) dengue
- (D) yellow fever

52. Which of the following is an example of a nutritional deficiency disease?

- (A) Rickets
- (B) Diabetes
- (C) Hypertension
- (D) Gastroenteritis

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53. Which of the following gases contributes MOST to the greenhouse effect?
- (A) Carbon dioxide
  - (B) Sulphur dioxide
  - (C) Nitrogen dioxide
  - (D) Carbon monoxide
54. Which of the following measures should an individual adopt to control diabetes?
- I. Increase the carbohydrate intake.
  - II. Adopt an active lifestyle.
  - III. Lose weight.
- (A) I and II only
  - (B) I and III only
  - (C) II and III only
  - (D) I, II and III
55. Which of the following substances contribute to the excessive growth of algae in waterways?
- (A) Nitrates and sulphates
  - (B) Nitrates and phosphates
  - (C) Carbonates and sulphates
  - (D) Carbonates and phosphates
56. In large-scale water purification, the formation of acid which destroys organisms is achieved by the process of
- (A) filtration
  - (B) screening
  - (C) chlorination
  - (D) sedimentation
57. The process by which water vapour changes to water is known as
- (A) sublimation
  - (B) evaporation
  - (C) solidification
  - (D) condensation
58. Which of the following are effects of releasing untreated sewage into rivers and lakes?
- I. Increase in bacteria
  - II. Decrease in oxygen
  - III. Death of fishes
- (A) I and II only
  - (B) I and III only
  - (C) II and III only
  - (D) I, II and III
59. The MOST effective ways of purifying water in the home are
- (A) boiling and freezing
  - (B) filtering and freezing
  - (C) boiling and chlorination
  - (D) chlorination and filtering
60. Which of the following substances is biodegradable?
- (A) Wood
  - (B) Plastic
  - (C) Concrete
  - (D) Styrofoam

**END OF TEST**

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



**DO NOT  
WRITE ON  
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### INSTRUCTIONS TO CANDIDATE:

1. Fill in all the information requested clearly in capital letters.

TEST CODE: 

0	1	2	5	3	0	1	0
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SUBJECT: HUMAN AND SOCIAL BIOLOGY – Paper 01

PROFICIENCY: GENERAL

REGISTRATION NUMBER: 

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FULL NAME: \_\_\_\_\_  
(BLOCK LETTERS)

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

2. Ensure that this slip is detached by the Supervisor or Invigilator and given to you when you hand in this booklet.
3. Keep it in a safe place until you have received your results.

### INSTRUCTION TO SUPERVISOR/INVIGILATOR:

Sign the declaration below, detach this slip and hand it to the candidate as his/her receipt for this booklet collected by you.

I hereby acknowledge receipt of the candidate's booklet for the examination stated above.

Signature: \_\_\_\_\_  
Supervisor/Invigilator

Date: \_\_\_\_\_

