



CASPA-INTER-REGIONAL MOCK EXAMINATION-CASPA-IRMEX BOARD	SUBJECT CODE NUMBER 710	PAPER NUMBER 1
	SUBJECT TITLE BIOLOGY	
CANDIDATE NAME: CANDIDATE NUMBER: CENTRE NUMBER:		
ADVANCED LEVEL	DATE: March 25th 2024	

Time Allowed: 3h

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper.

Make sure you have a soft HB pencil and eraser for this examination.

1. Use a soft HB pencil throughout the examination
2. Do not open the booklet until you are told to do so.

Before the examination

3. Check that this questions paper is headed 'Advanced Level Biology 710'
4. Insert the information required in the space provided.
5. Without opening the booklet, pull out your answer sheet carefully from inside the front cover of this booklet. Take care that you do not erase or fold the answer sheet or make any mark on it other than those asked for in this instructions.
6. Insert the information required in the space provided on the answer sheet using your HB pencil.

Candidate Name, Centre Number and Name, Candidate Number, Subject Code Number and Paper Number.

7. Answer all the 50 questions in the examination. All question carry equal marks.
8. Non-programmable calculators are allowed.
9. Each question has FOUR suggested answers: A, B, C and D . Decide on which answer is correct. Find the number of the question on the sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen. For example if B is your correct answer, mark as shown below:
[A] ~~[B]~~ [C] [D]
10. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase that mark carefully, then mark your new answer.
11. Avoid spending too much time on any one question. You can come to these questions later.
12. Do all rough work in this booklet, using where necessary, and the blank spaces in the question booklet.
13. Mobile phones are not allowed in the examination room.
14. You must not take this booklet out of the examination room. All question booklets and answer sheets will be collected at the end of the examination.

1. A group of organisms with a common genetic code capable of interbreeding to produce fertile offsprings belongs to which taxonomic hierarchy below)

- A. A . Kingdom
- B. Class
- C. Family
- D. Species

2. In the five kingdom scheme of classification, organisms are grouped based on

- A. Differences
- B. Similarities
- C. Structural differences and similarities
- D. Differences and similarities

3. All are major elements of organic molecules except

- A. Iron
- B. Carbon
- C. Hydrogen
- D. Oxygen

4. A bond between two monosaccharide molecules is called

- A. Ionic bond
- B. Glycosidic bond
- C. Peptide bond
- D. covalent bond

5. All enzymes are

- A. functional proteins
- B. globular proteins
- C. structural proteins
- D. conjugated proteins

6. The rate of an enzyme catalyzed reaction drops above the optimum temperature because

- A. Catalysis has stopped
- B. Enzyme has overworked
- C. Enzyme has lost its configuration
- D. Temperature is too high

7. An organelle that plays a vital role in protein synthesis

- A. Cytoplasm
- b. Ribosome
- C. Mitochondrion
- D. Endoplasmic reticulum

8. Anaerobic respiration in the cell occurs precisely in.

- A. mitochondrion
- B. Nucleus
- C. Cytoplasm
- D. Golgi body

9. All are tissues made up of one type of cell except

- A. Parenchyma
- B. Collenchymas
- C. Sclerenchyma
- D. Xylem

10. A joint between the bones of the skull is called.

- A. Fixed joint
- B. Suture
- C. Movable joint
- D. Synovial joint

Questions 11 -15 are based on the directions below.

Choose

- A. If statement 1 and 2 are both true and statement 2 explains statement 1
- B. If both statements are true but statement 2 does not explain statement 1
- C. If statement 1 is true and statement 2 is false
- D. If statement 1 is false and statement 2 is true

	Statement 1	Statement 2
11	Photosynthesis produces more yields in C ₄ plants	CO ₂ fixation occurs twice in C ₄ plants
12	The right side of the heart is thinner than the left side	The right side of the heart pumps blood over a relatively short distance at low pressure.
13	In alpha-D glucose, the OH group on carbon atom 5 is to the right	Alpha -D glucose is an isomer
14	The red blood cells of mammals carry more O ₂ than CO ₂	Haemoglobin molecules are found in solution when red blood cells are put in pure water
15	Every cell has a potential difference across its membrane	The cell surface membrane of any cell is made up of a bipolar lipid layer and sandwiched by a protein layer.

16. in a counter current flow system during gaseous exchange, the gills.

- A. Water flows in a direction parallel to the flow of blood
- B. The rate of water flow is higher than the rate of blood flow
- C. Water flows towards the gills
- D. Water flows in a direction opposite to the flow of blood.

17. In C₄ plants, the first noticeable product is /

- A. Oxaloacetic acid
- B. Glyceride phosphate
- C. Phosphoenol pyruvate
- D. Glucose

18. A solution of higher solute potential and lower solvent potential is said to be

- A. Isotonic
- B. Hypertonic
- C. Hypotonic
- D. Concentrated

19. A Q₁₀ value in an exothermic organism indicates that rate of metabolism

- A. doubles when body temperatures increases by 10°
- B. triples when body temperature increases by 10°
- C. remains constant when body temperature increases by 10°
- D. doubles when body temperature decreases by 10°

20. Are an opportunistic species in an ecological succession?

- A. trees
- B. shrubs
- C. grass
- D. bryophytes

In questions 21 – 25, each question has three sub answers i, ii, iii. Choose

- A. if i, ii, iii are all correct
- B. if i and ii are correct
- C. if ii and iii are correct

D. if only I is correct

21. During mitosis
- Cell fractionation occurs
 - The nucleus divides
 - Chromosome number is diploid
22. in protein synthesis in animals
- RNA polymerase and Mg^{2+} help mRNA formation
 - Transcription occurs in the nucleus
 - Translation occurs in the cytoplasm
23. Some of the main events in the light phase of photosynthesis include
- Light activation of chlorophyll with release of electrons
 - Reduction of NADP to NADPH
 - CO_2 combines with ribulose biphosphate
24. The following reactions take place during the Krebs's cycle process in tissue respiration.
- Carboxylation
 - Decarboxylation
 - Dehydrogenation
25. The following occur during crossing over in meiosis except,
- Genetic recombination of alleles
 - Chromatids break
 - Random fusion of gametes
26. Considering the genotype BwSa, the possible allele combinations for gamete formation will be,
- BS, Ba, wA, wa
 - BS, BW, Wa, ba
 - BS, bW, Ba, ba
 - BW, Bw, Bw, BA
27. in the Hardy- Weinberg equation $p^2 + 2pq + q^2 = F_2$ to determine the genotype frequencies, the homozygous dominant genotype is represented by,
- q^2
 - p^2
 - $2pq$
 - $p^2 + q^2$
28. The four most important elements of life in order of importance are,
- Hydrogen, Carbon, Oxygen, Nitrogen
 - Carbon, Hydrogen, Oxygen, Nitrogen
 - Carbon, Oxygen, Nitrogen, Hydrogen
 - Oxygen, Carbon, Nitrogen, Hydrogen
29. Ions move across the walls of an axon through the processes of
- simple and facilitated diffusion
 - diffusion and osmosis
 - active transport and osmosis
 - facilitated diffusion and active transport
30. In photoreception, a pigment that is a derivative of vitanine A
- Retinene
 - Scotopsin
 - Rhodopsin
 - Iodopsin
- Questions 31-35 .
Choose the answer that corresponds to the definition or description below.
- 31.
- ACCOMMODATION
 - Adaptation

- Summation
- Stimulation

A situation where a receptor gradually minimizes the intensity of a stimulus with time hence causing a reduction in response

- 32.
- Complementary DNA
 - Recombinant DNA
 - Messenger RNA
 - Transfer RNA

Produced using reversed transcriptase.

- 33.
- Carbon dioxide
 - Ethanol
 - Penicilin
 - Mycelium

A secondary metabolite in the fed-batch culture

- 34.
- Shoot
 - Radicle
 - Plumule
 - Cotyledon

Undergoes negative geotropism

- 35.
- Protandry
 - Protogony
 - Parthenocapy
 - Pathenogenesis

A condition where the anther of a flower matures before the stigma

Questions 36-45 relate to biological diagrams.

36. in the female reproductive system, the point where the nuclei of the male and female gametes fuse is called

- Vagina
- Uterus
- Ovary
- Oviduct

37. In a sensory neuron, a stimulus is received:

- Dendron
- Dendrites
- Cell body
- Axon

38. In the structure of a tooth, the hardest substance is

- Dentine
- Enamel
- Cement
- Crown

39. In the diagram of the heart, the left side is seen to be thicker than the right side because,

- It holds a greater volume of blood
- It holds a lesser volume of blood
- It pumps blood at a higher pressure
- It pumps blood to the lungs

40. In Planaria sp. , the mouth is situated

- On the head
- On the dorsal surface
- At the end of the pharynx
- On the ventral surface.

41. In the general structure of an amino acid molecule, the group that gives uniqueness to the acid is

- COOH group
- NH₂ group
- R group
- H group

42. The exact point where ATP is synthesized inside a cell is

- A. Mitochondrion
- B. Nucleus
- C. Matrix of the mitochondrion
- D. Crista of the mitochondrion.

43. In an ecological pyramid, which of the organisms below belongs to trophic level two,

- A. Horse
- B. Cat
- C. Earth worm
- D. Bean plant

44. The dental formula for a herbivore is represented by

- A. $2 \left[\begin{array}{cccc} I & c & pm & m \\ \frac{2}{2} & \frac{1}{1} & \frac{2}{2} & \frac{3}{3} \end{array} \right]$
- B. $2 \left[\begin{array}{cccc} I & c & pm & m \\ \frac{0}{3} & \frac{0}{1} & \frac{3}{2} & \frac{3}{3} \end{array} \right]$
- C. $2 \left[\begin{array}{cccc} I & c & pm & m \\ \frac{0}{2} & \frac{0}{1} & \frac{2}{2} & \frac{3}{3} \end{array} \right]$
- D. $2 \left[\begin{array}{cccc} I & c & pm & m \\ \frac{2}{2} & \frac{0}{1} & \frac{0}{2} & \frac{3}{3} \end{array} \right]$

45. In the structure of the ileum, the surface area for absorption is further increased by

- A. Villi
- B. Length of the ileum
- C. Thin epithelium
- D. Microvilli

Questions 46-50 relate to biological situations.

46. In the identification of food samples, the reagent that will give the sample a dark-blue coloration after the test is

- A. Benedict's solution
- B. iodine solution
- C. Fehling's solution
- D. Sudan III solution

47. An active process by which human egg cells take up nutrients from the surrounding follicle cells

- A. Phagocytosis
- B. Endocytosis
- C. Exocytosis
- D. Pinocytosis

48. A 100 cm³ solution at 70% dilution contains

- A. 70cm³ water and 30cm³ solute
- B. 30cm³ water and 70cm³ solute
- C. 100% water and 70% solute
- D. 70% water and 100% solute

49. In the test for reducing sugars, the appearance of a brick red precipitate indicates that

- A. Glucose is limited in quantity
- B. Glucose is much in quantity
- C. Cu²⁺ has been reduced to Cu⁺
- D. Cu⁺ has been oxidized to Cu²⁺

50. Gaseous substances move from one medium to another due to

- A. Differences in concentration
- B. Differences in partial pressures
- C. A steep diffusion gradient
- D. Free space between the mediums

STOP!

GO BACK AND CHECK YOUR WORK