

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate of Education Examination

0710 BIOLOGY 1

JUNE 2018

ADVANCED LEVEL

Centre Number	
Candidate Name	
Candidate Identification Number	
Candidate Name	

Mobile Phones are NOT allowed in the examination room.

MULTIPLE CHOICE QUESTION PAPER

One and a half hours

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 an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed "Advanced Level – 0710 Biology 1".
4. Fill in the information required in the spaces above.
5. Fill in the information required in the spaces provided on the answer sheet using your HB pencil:
Candidate Name, Exam Session, Subject Code and Candidate Identification Number.
Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.

How to answer the questions in this examination

6. Answer **ALL** the 50 questions in this Examination. All questions carry equal marks.
7. Calculators are allowed.
8. 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 Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.

For example, if C is your correct answer, mark C as shown below:

[A] [B] [C] [D]

9. 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 the first mark carefully, then mark your new answer.
10. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
11. Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.
12. Texts, notes and pre-prepared materials of any kind are also **NOT** allowed in the examination room.
13. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

4-/0710/1/C/MCQ

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Turn over

1. A highly complex protein with two or more polypeptides is:
 - A primary structure.
 - B secondary structure.
 - C tertiary structure.
 - D quaternary structure.

2. The respiratory pigment chlorocruorin is found in
 - A Cnidaria.
 - B Platyhelminthes.
 - C Nematoda.
 - D Annelida.

3. The folding of the inner membrane of a mitochondrion is an adaptation in that:
 - A It provides a site for electron transport system.
 - B It prevents interference between the electron transport system and Krebs's cycle.
 - C It provides the necessary ATP for endogenic reactions in the cell.
 - D It provides a large surface area for reactions of electron transport system.

4. The striations of skeletal muscles result from the patterns of
 - A actin and myosin filaments.
 - B intercalated discs.
 - C the troponin complex.
 - D the ATP molecules.

5. The ground tissue (packing) that makes up most of the fleshy part of plants is called
 - A parenchyma.
 - B sclerenchyma.
 - C collenchyma.
 - D epidermis.

6. DNA replication is semi-conservative. What does this mean?
 - A Half DNA is copied.
 - B Each DNA strand serve as a template during replication.
 - C Only some base pairs are altered during replication.
 - D Half of the DNA strand replicates.

7. What distinguishes a retrovirus from other viruses?
 - A Their RNA cannot be translated into DNA.
 - B Their RNA does not have a base sequence.
 - C Their RNA can be translated into DNA.
 - D Their RNA can be translated into mRNA.

8. How are glandular cells different from non-glandular cells?
 - A They contain few golgi apparatus.
 - B They contain increased amount of rough endoplasmic reticulum.
 - C They contain increased number of lysosomes.
 - D They have larger mitochondria.

9. The genetic information for most cells is coded by a
 - A sequence of amino acids.
 - B sequence of purine and pyrimidine bases on DNA molecule.
 - C relative amounts of purine and pyrimidine in DNA.
 - D sequence of purine and pyrimidine in ribosomal RNA.

10. In the cell of an angiosperm, chlorophyll molecules are abundant in the
 - A stroma of the chloroplast.
 - B cytoplasm of the chlorenchyma cell.
 - C lamellae of the chloroplast.
 - D granal membrane of the chloroplast.

11. What is the turn over number of an enzyme?
 - A The number of times an enzyme can catalyse a substrate molecule.
 - B The number of substrate molecules that an enzyme can catalyze.
 - C The number of substrate molecules that one enzyme molecule can convert per unit time.
 - D The number of substrate molecules that one enzyme molecule can convert throughout the reaction.

12. In cellular respiration the greatest number of ATPs is generated by
 A glycolysis.
 B the kreb cycle.
 C the electron transport chain.
 D fermentation.

13. In an experiment studying photosynthesis performed during the day, you are provided a plant with radioactive Carbon (^{14}C) dioxide as a metabolite tracer. The ^{14}C is incorporated first into oxaloacetate. The plant include.
 A Rice
 B Bean
 C Hibiscus
 D Pear

14. A person who has been vaccinated against polio is not likely to suffer from polio for life because his blood has
 A antibodies against polio.
 B plasma cells against polio.
 C T-lymphocytes against polio.
 D memory cells against polio.

15. A human eye focuses on near objects by.
 A relaxing the circular muscles of the iris and contracting the radial muscles.
 B Increasing the focal length of the lens (thinner lens)
 C contracting the circular muscles and relaxing the radial muscles.
 D Decreasing the focal length of the lens (thicker lens)

16. The movement of oxygen and carbon dioxide between the blood in tissues, capillaries and the cells in the tissues depend most directly upon
 A active transport of oxygen and carbon dioxide.
 B total atmospheric pressure differences across the cell membrane.
 C diffusion of oxygen and carbon dioxide as a concentration gradient.
 D diffusion of oxygen and carbon dioxide down a concentration.

17. Which of the following hormones regulates the basal metabolic rate(B.M.R)
 A Thyroxine.
 B Parathyroid hormone.
 C Aldosterone.
 D Cortisone.

18. The threshold of a neuron is the
 A amount of inhibitory neurotransmitters required to inhibit an action potential.
 B membrane voltage at which an axon potential would be suppressed.
 C amount of excitatory neurotransmitter required to elicit an action potential.
 D membrane voltage at which the membrane potential develops an action potential.

For questions 19 - 24 one or more of the responses is (are) correct. choose:

- A If (i), (ii) and (iii) are all correct.
 B If (i) and (iii) only are correct
 C If (ii) and (iv) only are correct
 D If (iv) only is correct.

19. Which of the following is/are characteristic of carbohydrates?
 (i) They are all made up of disaccharides.
 (ii) All have α -1, 4 glycosidic bonds.
 (iii) All have many hydrogen groups.
 (iv) They have a general formula $\text{C}_x(\text{H}_2\text{O})_y$ where x and y are variable numbers.

20. In the light independent stage of photosynthesis in C_3 plants
 (i) CO_2 fixation occurs once.
 (ii) glycerate phosphate is the first carbohydrate to be formed.
 (iii) ribulose bi-phosphate is CO_2 acceptor .
 (v) PEP carboxylase catalyses the fixation of CO_2 .

21. The glycerate phosphate(GP) manufactured during photosynthesis can be used by plants to synthesize
 (i) protein
 (ii) cellulose
 (iii) lipids and oils
 (iv) calorophyl

Turn Over

22. After a car accident, a man had a problem in balancing himself during walking. However, he could still hear well. What body structure might have been damaged?
- Cerebrum
 - Cerebellum
 - Cochlea
 - Semicircular canal
-
23. A cretin is a child
- with mental and physical retardation.
 - lacking sufficient iodine in the diet.
 - with less secretion of thyroxine.
 - that feeds on sea fish and sea products.
-
24. Human red blood cells and onion epidermal cells are similar in that they both have
- a nucleus.
 - mitochondria.
 - ribosomes vacuoles.
 - Cell surface membranes
-
25. A steroid hormone initiates a response by
- Activating specific genes in the nucleus causing enzyme synthesis
 - binding to the target organ.
 - forming hormone- receptor complex.
 - Activating existing enzymes stored in the cytoplasm.
-
26. An essential feature of a competitive inhibitor is its ability to
- activate an operator gene.
 - combine with a prosthetic group.
 - modify the substrate.
 - occupy an active site.
-
27. Non-cyclic electron flow in the chloroplast results in the production of
- ATP only.
 - ATP and NADP.
 - ATP and G_3P .
 - ATP, $NADPH_2$, and O_2 .
-
28. The water potential of a cell is
- equal to zero when the cell is in pure water and is turgid.
 - greater than that of air.
 - greater when potassium ions are actively moved into the cell.
 - zero due to loss of turgor pressure in a hypertonic solution.
-
29. The primary function of the large intestine is
- the breakdown and absorption of fats
 - the reabsorption of vitamin K.
 - the absorption of water.
 - the concentration of solid waste.
-
30. This mammal chews the cud
- Rabbit.
 - Grass cutter.
 - Sheep.
 - Rat.
-
31. This vitamin is necessary for the formation and action of the co-enzyme flavine adenine dinucleotide (FAD).
- Niacin.
 - Riboflavine.
 - Thiamine.
 - Retinol.
-
32. Cardiac output is defined as heart rate times blood pressure.
- times peripheral pressure.
 - Heart rate times peripheral resistance.
 - heart rate times stroke volume.
 - stroke volume times blood pressure.
-
33. The main function of the xylem fibre is they
- Conduct water.
 - give rise to xylem vessels.
 - allow water and ions to pass through the pit.
 - The confer mechanical support to the xylem.
-
34. Glucose moves from the plasma into the red blood cells by
- active transport.
 - endocytosis.
 - facilitated diffusion.
 - Osmosis.
-
35. A nerve impulse is usually transmitted from a motor neurone to a muscle by
- acetylcholine.
 - a hormone.
 - an active potential.
 - Ca^{+} .
-

36. Blood returning to the mammalian heart in a pulmonary vein would drain first into the
A vena cava.
B left ventricle.
C right atrium.
D left atrium.
-
37. Two keen observers of nature who outlined the theory of evolution by natural selection were:
A Darwin and Lamarck.
B Darwin and Wallace.
C Mendel and Darwin.
D Wallace and Lamarck.
-
38. Fertilization is the:
A Union of gametes.
B union of the sperm nucleus and egg nucleus.
C Union of two nuclei.
D union of egg and sperm.
-
39. "Sticky ends" are:
A double stranded ends of DNA fragments.
B complementary to other specific sticky ends.
C Produced by accidental cuts of DNA
D six to ten lon nucleotides.
-
40. A tad pole tail is gradually broken down during metamorphosis into an adult form. Which organelles increase in number in the cells of the tail at this time?
A Centrioles.
B Endoplasmic reticulum
C Golgi apparatus.
D Lysosomes.
-
41. Which of the following is currently a primary cause of species decline worldwide?
A Habitat destruction.
B Intraspecific competition.
C Climatic changes
D Viral outbreak.
-
42. The carrying capacity is
A the number of individuals in the population at a given time.
B reached when natality exceeds mortality.
C reached when mortality equals natality.
D population size that can be supported by variable resource for that species within the habitat.
-
43. A 1:1 phenotypic ratio in a test cross indicates that
A the alleles are dominant.
B one parent must have been homozygous recessive.
C the dominant phenotype parent was a heterozygote.
D the alleles segregated independently.
-
44. Two alleles will probably assort independently if they are
A very close together on the same chromosome.
B very far apart on the same chromosomes.
C On homologous chromosomes.
D they are both located on X-chromosomes.
-

Turn Over

Questions 45- 50. Each of the following questions consists of a statement in the left- hand column followed by a second statement in the right- hand column. Choose:

- A If both statements are true and the second is a correct explanation of the first.
 B If both statements are true but the second statement is NOT a correct explanation of the first.
 C If the first statement is true but the second is false.
 D If the first statement is false and the second is true.

- | FIRST STATEMENT | SECOND STATEMENT |
|---|---|
| 45. Some inhibitory will cause hyper polarization of the post -synaptic membrane. | The release of transmitter substance at inhibitory synapses produces a hyper polarization of the membrane called inhibitory post- synaptic potential. |
| 46. In cheese production, the lactic acid bacteria convert the milk sugar lactose into lactic acid. | In cheese production, the curd is heated between 32°C - 42°C and salt is added and the curd is pressed into moulds. |
| 47. Deforestation leads to extinction of animal species | Deforestation leads to loss of habitat for animals. |
| 48. Mitosis leads to growth | Mitosis leads to an increase in the number of body cells |
| 49. Sickle cell anaemia is an example of gene mutation | Chromosome mutation may involve a change in chromosome number or structure |
| 50. A patient who is on oral antibiotic therapy for long has a long blood clotting time | Blood clotting mechanism is dependent on the presence of vitamin K produced by the gut flora |