

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate Of Education Examination

710 BIOLOGY 1

JUNE 2015

ADVANCED LEVEL

Centre Number

Centre Name

Candidate 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 – 710 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 Number and Name, Centre Number and Name.**
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. Each question has FOUR suggested answers: A, B, C and D. Decide on the best answer that 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]

8. 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.
9. Avoid spending too much time on any one question. If you find that a question is difficult, move on to the next question. You can come back to this question later on.
10. Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.
11. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet after. DO NO ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

1. Which of the following organelles is the site of rRNA synthesis?

- A Centriole
- B Nucleolus
- C Ribosomes
- D Golgi body

2. Of what importance is the dichotomous branching of the marine alga *Fucus*?

- A To ease fragmentation.
- B To enhance photosynthesis.
- C To minimize resistance to the flow of water.
- D To increase buoyancy.

3. Intracellular enzymes are produced inside the cell and control metabolic processes in the cell. An example of such an enzyme is

- A amylase.
- B lysase.
- C RNA polymerase.
- D lipase.

4. Facilitated transport differs from diffusion in that facilitated transport

- A moves molecules from a high to low concentration.
- B moves molecules down a concentration gradient.
- C involves the use of a carrier protein.
- D involves the use of ATP molecules.

5. The following cells would be activated first when the body is invaded by a virus.

- A T cells.
- B Antibodies .
- C Macrophages.
- D Neutrophils.

6. The organelles that contain the enzyme catalase

- A Golgi complex
- B Centrioles
- C Microbodies
- D Microtubules

7. Which of the following pathways does an oxygen molecule follow when inhaled by an insect?

- A Spiracle → trachea → trachioles → blood → living cells.
- B Spiracles → trachea → trachioles → living cells.
- C Spiracles → trachea → trachioles → blood stream → living cells.
- D Spiracles → trachioles → blood stream → living cells.

8. A Q_{10} value in an exothermic animal indicates that the metabolic rate

- A triples when body temperature increases by 10°C .
- B triples when the body temperature increase by 3°C .
- C doubles when the body temperature increase by 10°C .
- D triples when the body temperature decrease by 10°C .

9. During human development, which part of the blastocyst will develop into a foetus?

- A Morula
- B Trophoblast
- C Chorion
- D Inner cell mass

10. Which of these groups of organisms are heteromorphous and possess septate hyphae?

- A Fungi
- B Ascomycota
- C Basidiomycota
- D Zygomycota

11. The hormone which promotes the ripening of fruits is

- A Abscicic acid.
- B Cytokinins.
- C Ethylene.
- D Gibberellins.

12. Which of the following correctly describes Plasmids.
- A They are composed only of RNA.
 - B They are composed of RNA and protein.
 - C They are DNA segments in chromosomes of bacteria.
 - D Small circular piece of DNA located in the cytoplasm of many bacteria.

13. According to the Hardy-Weinberg principle, allele frequency in a randomly mating population will
- A increase with the growth of the population.
 - B decrease with the increase in the population.
 - C change when birth rate exceeds death rate.
 - D remain constant.

4. The period of human gestation is divided into three trimesters (stages). Which of the following events is correctly matched to its trimester of occurrence?
- A Development and differentiation characterize the third trimester.
 - B The greatest growth in size occurs in the first trimester.
 - C The limb buds develop in the first trimester.
 - D Organ development develops in the second trimester.

5. When you bend your arm, the bulge seen at your elbow is part of the
- A humerus.
 - B ulna.
 - C radius.
 - D carpal.

For questions 16 to 27, one or more of the responses is/are correct. Choose

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

16. Downstream processing in biotechnology involves:
- (i) distillation and filtration.
 - (ii) fermentation and monitoring.
 - (iii) drying and solvent extraction.
 - (iv) formulation and packing.

17. A nonsense codon
- (i) codes for protein.
 - (ii) ends the reading of a message on a mRNA.
 - (iii) is found in bacterial cells only.
 - (iv) e.g. UAA, UAC, UGA.

18. The exchange of materials across membranes is/are
- (i) to obtain nutrients.
 - (ii) to excrete waste substances.
 - (iii) to maintain a suitable pH and ionic concentration.
 - (iv) to transmit impulses across synapses.

19. Which of the following characteristics does an endocrine gland have?
- (i) It has a rich supply of blood with a relatively large number of blood vessels.
 - (ii) It secretes its products into a duct.
 - (iii) It secretes chemicals called hormones.
 - (iv) It is effective at high concentrations.

20. Which of the following does DNA replication require?
- (i) DNA polymerase.
 - (ii) Deoxyribonucleotides.
 - (iii) DNA helicase.
 - (iv) RNA polymerase.

21. The following mechanisms will favour cross pollination?
- Dichogamy
 - Cleistogamy
 - Self sterility
 - Homogamy
-
22. Which of the following statement is/are true of the mammalian liver?
- It is supplied by only one artery.
 - It detoxifies toxins that enter the blood from the gut.
 - It produces insulin that reduces blood glucose.
 - It is the largest organ of the body.
-
23. Allometric growth can be defined as
- a type of growth pattern seen in fish and certain insects such as locust.
 - growth in which the organism grow at the same rate as the rest of the body.
 - growth in which the relative proportions of the organs and the whole body remain the same.
 - growth in which the organs grow at different rates from the rest of the body.
-
24. In enzyme activity, the molecule NADP can be considered as
- an apoenzyme.
 - a cofactor .
 - an activator .
 - a coenzyme.
-
25. During photosynthesis, the light dependent reactions will
- take place in the stroma.
 - occur in a cycle divided into phases.
 - use ATP and reduced NADP.
 - not need enzymes for proper functioning.
-
26. The sertoli cells play which of the following roles(s) in the testes.
- They undergo first and second meiotic division to form sperms.
 - They remould sperms to form spermatids.
 - They transport sperms from testis to penis.
 - They exchange nutrients and wastes between sperm and blood.
-
27. Which of the following statements apply to members of the class Aves?
- They have feathers.
 - They excrete urea.
 - They are homoeothermic.
 - They are poikilothermic.
-
28. An "ecological niche" can be defined as
- the place where an organism lives.
 - a group of individuals living together.
 - the role an organism plays in an ecosystem.
 - the type of food an organism feeds on in an ecosystem.
-
29. Which of the following communities tend to produce more organic material than it uses?
- The shrub community.
 - The herb community.
 - The pine community.
 - The dense shrub community.
-
30. In which of the following habitats would it be most likely to find an animal which maintains a constant body temperature, excrete urea, has a large surface area in proportion to its volume and long kidney tubules?
- A tropical fresh water.
 - A tropical terrestrial.
 - A temperate terrestrial.
 - A temperate freshwater.
-
31. The following is an example of discontinuous variation in humans
- Height.
 - Skin colour.
 - Haemophilia.
 - Weight.
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For questions 32 to 38 there are two statements. Read through the statements and then choose:

- A if both statements are true and the second explains the first.
- B if both statements are true but the second does not explain the first
- C If the first statement is true and the second is false
- D If the first statement is false and the second is true.

First Statement

Second Statement

- | | |
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| <p>32. The cytoplasm cells are generally not isolated from one another.</p> <p>33. Ruminants chew the cud or ruminate.</p> <p>34. Nematodes have a coelom.</p> <p>35. As opposed to pyramid of numbers, pyramid of energy is never inverted.</p> <p>36. With "fed-batch" culture, the period of growth is extended by adding nutrients at high concentration during fermentation.</p> <p>37. During manipulation of a gene, a plasmid may be used as a vector.</p> <p>38. Parthenogenesis is a form of asexual reproduction.</p> | <p>The cellulose cell wall is interrupted at intervals by plasmodesmata.</p> <p>The diastema helps ruminants chew grass by keeping grass freshly cropped from that being chewed.</p> <p>Nematodes are triploblastic.</p> <p>Only about 10% of energy flows from a lower trophic level to a higher trophic level.</p> <p>With "fed-batch" culture, rate of growth can be regulated to keep pace with the rate at which oxygen can be supplied.</p> <p>A plasmid contains extra DNA.</p> <p>Parthenogenesis involves gamete formation.</p> |
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39. The following pairs represent an analogous evolutionary feature.

- A Elephant tusks and human incisors.
- B Insect wing and bat wing.
- C Teleost erythrocyte and mammalian erythrocyte.
- D Mole forelimb and bird wing.

40. Gonadotrophic hormones include:

- A Oestrogen and progesterone.
- B Oestrogen, progesterone and testosterone.
- C Luteinizing hormone and testosterone.
- D Luteinizing hormone and follicle stimulating hormone.

41. The most immediate effect on FSH synthesis is a

- A rise in progesterone.
- B fall in progesterone.
- C rise in LH.
- D fall in testosterone.

42. Which of these is a characteristic of hormones?

- A A large quantity is needed to produce a desired effect.
- B They are produced in the tissue that they effect.
- C Small quantities can produce effects.
- D They work independently from other hormones.

43. The group of organisms that contributes to the primary productivity of an ecosystem is;

- A Algae.
- B Protozoans.
- C Bacteria.
- D Fungi.

44. In which of the following natural areas or situations might nitrification be favoured?
- A Anywhere there is insufficient oxygen for decomposition of all accumulated organic matter.
 - B Anywhere there is sufficient oxygen for decomposition of all accumulated organic matter.
 - C Anywhere there is sufficient carbon dioxide for decomposition of all accumulated organic matter.
 - D Anywhere there is insufficient carbon dioxide for combustion of all accumulated inorganic matter.

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45. A drug that inhibits excretion of bicarbonate will cause the blood to become:
- A acidic.
 - B alkaline.
 - C first acidic and then alkaline.
 - D first alkaline and then acidic.

-
46. The active portion of the cytochrome oxidase enzyme is a haem group. It contains a mineral element which can exist in the oxidized or reduced state. This element is
- A Sodium.
 - B Potassium.
 - C Iron.
 - D Iodine.

-
47. The enzyme acetyl cholinesterase which hydrolyses acetylcholine to choline is at:
- at
- A postsynaptic membrane.
 - B presynaptic membrane.
 - C Presynaptic cleft.
 - D Neuromuscular junction.

-
48. The role of RNA polymerase is to
- A bind ribonucleotides together during translation.
 - B bind ribonucleotides together during transcription.
 - C break down RNA during digestion.
 - D add ribosomes during translation.

49. The volume of air taken in during inspiration which does not take part in gaseous exchange is known as
- A residual volume.
 - B inspiratory reserve volume.
 - C expiratory reserve volume.
 - D dead space air.

-
50. The immunity produced when the body manufactures antibodies on exposure to an infectious agent, is known as
- A natural passive immunity.
 - B artificial passive immunity.
 - C natural active immunity.
 - D artificial active immunity.

STOP

NOW GO BACK AND CHECK YOUR WORK