

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate of Education Examination

0710 BIOLOGY 1

JUNE 2017

ADVANCED LEVEL

Centre Number	
Centre Name	
Candidate Identification No.	
Candidate Name	

Mobile phones are NOT allowed in the examination room.

MULTIPLE CHOICE QUESTION PAPER

One and a Half (1½) 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 "0710 Biology 1 - Advanced Level".
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. Each question has **FOUR** suggested answers: **A, B, C** and **D**. Decide on the best answer that is appropriate. 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 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. **DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH ANY.**

Turn Over

1. Which of the following is the main function of collenchyma and sclerenchyma in plants?
 - A Storage
 - B Support
 - C Transport of water
 - D Transport of food

2. The inhibition of lateral buds by the presence of shoot tips is called
 - A grafting.
 - B cuttings.
 - C apical dominance.
 - D marcoting.

3. Impulses to the Purkinje tissue take rise from the
 - A atrio-ventricular node (AVN).
 - B sino-atrial node (SAN).
 - C brain.
 - D vagus nerve.

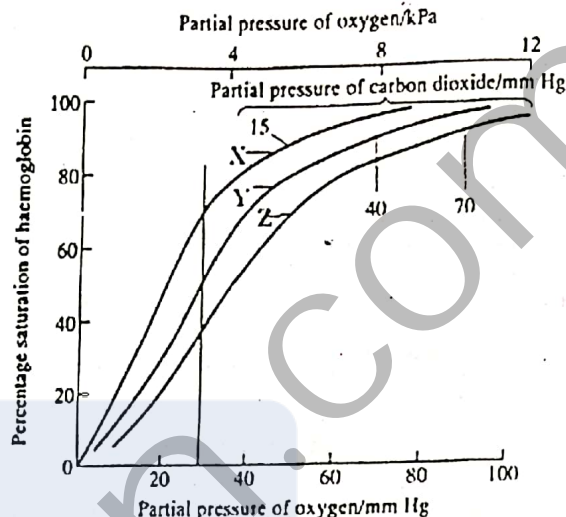
4. Which of the following takes place during inspiration?
 - A The external intercostal muscles contract and ribs are moved upwards and outwards.
 - B The internal intercostal muscles relax and ribs move inwards and downwards.
 - C The external intercostal muscles relax and ribs move downwards and inwards.
 - D The internal intercostal muscles contract and ribs move upwards and outwards.

5. Which of the following is associated with nitrogen fixation in bacterial cells?
 - A Bacterial chromosomes.
 - B Photosynthetic membranes.
 - C Plasmids.
 - D Pilli.

6. Above which temperature does human enzymes begin to denature?
 - A 37°C
 - B 40°C
 - C 45°C
 - D 50°C

7. The force that holds liquids in a continuous stream is called
 - A cohesion.
 - B adhesion.
 - C transpiration pull.
 - D root pressure.

8. Humans have three different types of pigments for carriage of oxygen. These pigments vary in their capacities to carry oxygen as depicted by the curves below.



Using these curves carefully identify the different pigments.

- A X = myoglobin; Y = foetal haemoglobin; Z = normal haemoglobin.
 - B X = foetal haemoglobin; Y = myoglobin; Z = normal haemoglobin.
 - C X = normal haemoglobin; Y = foetal haemoglobin; Z = myoglobin.
 - D X = myoglobin; Y = foetal haemoglobin; Z = normal haemoglobin.

9. In a randomly breeding human population, one person out of 1000 is albino. Calculate the approximate frequency of heterozygous breeding individuals in this population.
 - A 2%
 - B 1%
 - C 44%
 - D 25%

10. Hydrolysis of lipid molecules will yield
 - A amino acids and glycerol.
 - B fatty acids and glycerol.
 - C glycerol and water.
 - D glucose and water.

11. In angiosperms, double fertilization results in a diploid zygote and a
 - A triploid embryo.
 - B diploid embryo.
 - C triploid pericarp.
 - D triploid endosperm.

12. A transgenic organism is characterized by the presence of

- A plasmid.
- B recombinant DNA.
- C recombinant RNA.
- D restriction endonuclease.

13. An example of convergent evolution is

- A wings of insects and wings of birds.
- B wings of birds and pentadactyl limbs of the whales
- C appendix of man and the caecum of rodents..
- D coccyx of man and the tail of a horse.

14. In the fruit fly, grey body is dominant over black body and long wing over vestigial wing. The genes controlling these characters are linked.

The following statistics was realized in a population of fruit fly when two parents homozygous for both characters were crossed and the offspring test crossed:

grey body, long wing	= 1000
black body, vestigial wing	= 800
black body, long wing	= 206
grey body, vestigial wing	= 200

What is the crossover value of the recombinants produced?

- A 17%
- B 8.04%
- C 18.40%
- D 391

For questions 15 to 21, one 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.

15. Ca^{2+} in living organisms

- (i) helps in muscle contraction.
- (ii) is a component of bacterial cell wall.
- (iii) helps in the transmission of impulses in nerve cells.
- (iv) is a component of chlorophyll a.

16. Which of the following is correct of glycolysis

- (i) It takes place in the mitochondrion.
- (ii) produces much of the ATP in tissue respiration.
- (iii) It does not occur in bacterial cells.
- (iv) It is the main process producing energy in yeast fermentation.

17. Extinction of species can be prevented by

- (i) destroying the habitats.
- (ii) not protecting the species.
- (iii) increasing the use of bio-poisons.
- (iv) controlling and reducing the impacts of modern agriculture.

18. During the process of digestion in rodents

- (i) food is stored in the rumen.
- (ii) upper incisors are absent.
- (iii) the gizzard helps to grind food material.
- (iv) mutualistic micro-organisms digest cellulose in the caecum.

19. The overall purpose of the Calvin cycle is to

- (i) generate molecules of ATP.
- (ii) generate NADPH.
- (iii) assist plants in tissue respiration.
- (iv) build organic molecules.

20. Kranz Anatomy is

- (i) the biochemical pathway through which C_4 Plants carry out photosynthesis.
- (ii) the arrangement of chloroplast-containing cells around the vascular bundles of the leaf.
- (iii) a distinctive sheath of cells around the root hairs for absorption of water.
- (iv) the arrangement of bundle sheath cells around the vascular bundles of the leaf.

21. The molar of a human

- (i) has 4 or 5 cusps.
- (ii) is used for tearing flesh.
- (iii) is used for grinding and crushing of food.
- (iv) is the last to appear in the milk dentition of humans.

Turn Over

22. The gametophyte in a moss, liverwort and fern:
- is haploid.
 - is reduced.
 - is green and photosynthetic.
 - is anchored by unicellular rhizoids.
-
23. According to the fluid mosaic model, a plasma membrane is composed of
- phospholipid and hemicellulose.
 - phospholipid and polysaccharide.
 - phospholipid, extrinsic and intrinsic proteins.
 - phospholipid and surface proteins
-
24. When glomerular filtrate is produced in the kidney tubule, it moves from
- proximal convoluted tubule to distal convoluted tubule.
 - proximal convoluted tubule to collecting duct.
 - proximal convoluted tubule to loop of Henle.
 - distal convoluted tubule to proximal convoluted tubule.
-
25. Which of the following pairs of hormones work together so that sperms can be produced from spermatogonia?
- LH and FSH
 - GnRh and FSH
 - LH and FSH
 - Testosterone and FSH
-
26. How does the myelin sheath increase the speed of impulse transmission?
- It restricts the potential difference to the Node of Ranvier.
 - It promotes a change in potential difference along an axon
 - It ensures that the ions are kept close to the axon membrane
-
27. The quantity of DNA in a mature human epithelial cell is 6.5×10^{-12} g. The quantity of DNA in a mature red blood cell is.
- 3.25×10^{-12} g..
 - 6.5×10^{-12} g...
 - 0g.
 - 13×10^{-12} g.
-
28. Which of the following contains a code for protein?
- DNA polymerase.
 - RNA polymerase.
 - tRNA.
 - mRNA.
-
29. A body cavity completely surrounded by tissue derived from the mesoderm that provides cushioning for internal organs is called:
- a coelom.
 - a pseudocoelom.
 - an archenteron.
 - a gastrovascular cavity.
-
30. Which of these organisms has the largest number of chambers in its heart?
- Amphibian.
 - Reptile.
 - Bird.
 - Shark.
-

For questions 31 to 40 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

31. There are more males than females that suffer from haemophilia

The gene for haemophilia is found on the X chromosome.

32. The cell surface membrane of all living cells carry a potential difference.

The sodium / potassium pump continuously pumps Na^+ out of the cell and K^+ into the cell.

33. Meiosis produces haploid gametes in organisms.

Meiosis is characterized by two consecutive divisions.

34. An advantage of transgenic can be that a gene for a desirable characteristic can be identified and cloned.

Transgenic is much faster than conventional breeding.

35. At the end of gestation the level of progesterone declines while oxytocin builds up.

The amniotic sac breaks and amniotic fluid is passed through the vagina where it helps to lubricate the birth passage.

36. Petals of insect pollinated flowers are inconspicuous.

Insects are attracted to the plant to carry out pollination.

37. Secondary growth in plants occurs in all herbaceous plants.

In plants secondary growth is caused by the cambium.

38. Translation is the process by which information coded within mRNA is used to make a specific polypeptide chain.

mRNA usually binds on the small subunit of the ribosome.

39. Energy pyramids are never inverted.

Only 10% of the energy flows from a lower trophic level to a higher trophic level.

40. Classification can be done based on the uses of the organisms e.g medical values.

This type of classification is known as the natural system of classification

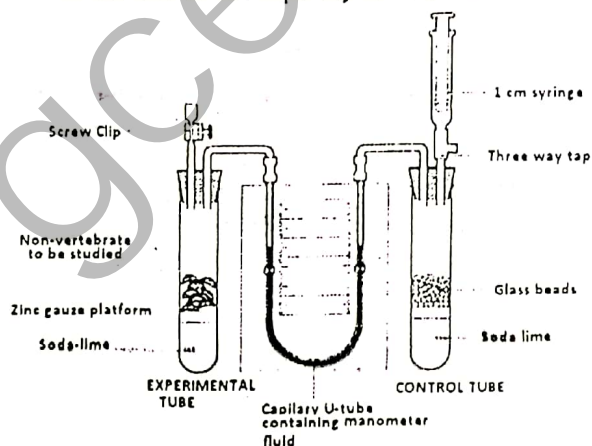
41. In penicillin production, the fermentation process is described as:
- Batch fermentation.
 - Continuous culture.
 - "Fed-batch" culture.
 - Downstream processing.

42. Some bacteria can effectively carry out metabolism in the presence or absence of oxygen. They are described as
- aerobic.
 - anaerobic.
 - fermentative microbes.
 - facultative anaerobes.

43. Which of the following processes produce the maximum energy yield when one molecule of glucose is oxidized?
- Oxidative phosphorylation.
 - Oxidation of pyruvic acid.
 - Glycolysis in the mitochondria.
 - Glycolysis in the cytoplasm.

44. The enzyme cholinesterase which hydrolyses acetylcholine to choline acts on the
- postsynaptic membrane.
 - presynaptic membrane.
 - synaptic cleft.
 - neuromuscular junction.

45. The set up below is a respirometer depicting an experiment to measure the rate of uptake of oxygen by wood louse. If after 30mins the distance of the ascending and descending limbs of the manometer is 95.5mm and the diameter of the bore of the capillary is 0.2mm.



The rate of oxygen uptake by these eight wood lice is

- 47.5mm³/min.
- 0.1mm³/min.
- 3.0mm³/min.
- 1.9mm³/min.

46. A male with underdeveloped testes, breast development, subnormal intelligence and an abnormal karyotype is likely to have:
- Klinefelters syndrome.
 - Down's syndrome.
 - Turners syndrome.
 - Huntington disease

47. Which of the following tends to produce more organic material than it uses?
- The shrub community.
 - The herb community.
 - The pine community.
 - The dense shrub community.

48. The solute potential of cells kept in pure water for two days is -900Kpa. The pressure potential of these cells is:
- 1800Kpa
 - 1800Kpa
 - 900Kpa
 - 900Kpa

49. The presence of a perivisceral cavity in the mesoderm of triploblastic multicellular organisms makes them to be called

- acoelomates.
- pseudocoelomates.
- coelomates .
- coelenterates.

50. Reverse transcriptase is used in genetic engineering do which of the following?
- Synthesize the desired gene artificially.
 - Chop DNA into pieces and search for the desired gene.
 - Extract a copy of the gene from DNA.
 - Make a copy of the gene from its mRNA.

STOP

GO BACK AND CHECK YOUR WORK