



Dr. Blossa Science

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The Science Foundation College
Uganda East Africa
Senior one to senior six
+256 778 633 682, 753 802709
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NAME:..... STREAM.....

SENIOR FOUR

553/1

BIOLOGY

PAPER 1

EXAM 14

TIME: 2.30 HOURS

Instructions:

- Answer **all** questions
- Answers to section A and B must be put in the spaces provided only
- Answers to section C be put on the answer sheets provided

	A	B	C	D		A	B	C	D
1					16				
2					17				
3					18				
4					19				
5					20				
6					21				
7					22				
8					23				
9					24				
10					25				
11					26				
12					27				
13					28				
14					29				
15					30				

- C: it is relatively slow
D: Does not involve any growth
14. Which one of the following substances accumulates in muscles during vigorous exercise?
A: water B: lactic acid C: carbon dioxide D: oxygen
15. In what part of the green flowering plant does meiosis occur?
A: seed B: flower C: Fruit D: shoot apex
16. Which of the following pairs of cells does not have nuclei when mature?
A: sieve tube cells and companion cells B: Erythrocytes and leucocytes
C: sieve tube cells and erythrocytes C: companion cells and leucocytes
17. Which one of the following processes needs energy?
A: Absorption of water by root hairs B: gaseous exchange in the alveoli
C: loss of turgidity by a plant cell D: Absorption of mineral salts by root hairs
18. Enzymes are said to be specific in nature because they are
A: proteins
B: act in a particular pH medium
C: act on one kind of substrate
D: remain unchanged at the end of the reaction
19. In body temperature regulation, Vasoconstriction
A: allows less blood to enter the skin capillary network
B: allows less urine to be secreted into the bladder
C: allows more sweat to be secreted by the sweat glands
D: increases heat loss by radiation
20. Which one of the following is characteristic of monocotyledons?
A: leaf sheath B: net venation
C: prominent taproot D: cork layer.
21. The living together of a fungus and an algae as a lichen is called
A: symbiosis B: parasitism
C: saprophytism D: commensalism
22. Which of the following substances are secreted in mammalian sweat?
A: urea, ammonia, water B: urea, carbon dioxide, sodium chloride
C: urea, water, sodium chloride D: urea, carbon dioxide, water
23. Nerves, the spinal cord and the brain make up
A: a tissue B: a system C: an organ D: an organism
24. During inspiration the
A: pressure in the thoracic cavity is reduced
B: external intercostal muscles relax

C: diaphragm becomes dome-shaped
D: the thoracic cavity becomes smaller

25. Which one of the following is characteristic of animal cells?
A: presence of cell walls B: cells consist entirely of cytoplasm
C: have regular shape D: have large centrally placed vacuoles.
26. Which of the following is deficient in a person whose gums bleed?
A: vitamin C B: vitamin E C: vitamin B₂ D: vitamin K
27. Which one of the following tissues has a protective function in plants?
A: xylem B: phloem C: cambium D: Epidermis
28. Which disease would one be controlling by pouring molluscides in water?
A: schistosomiasis B: Guinea worm infection
C: typhoid D: cholera
29. If a gecko is seen eating mosquitoes, flies, moths and grasshoppers, this animal is said to be a
A: parasite B: symbiont C: predator D: saprophyte
30. Which one of the following structural adaptations of leaves is important for light absorption during photosynthesis?
A: Dense network of veins
B: large numbers of stomata on leaf surface
C: large intercellular air spaces in the spongy layer
D: broad and flat shapes of leaves.

SECTION B:

31. The table below shows the results of blood cell counts (red and white blood cells) taken on people living at different altitudes.

Altitude (m)	Red blood cell count (mm ³ x 10 ⁶)	White blood count (mm ³ x 10 ⁶)
1000	5.0	0.2
2000	5.6	0.2
3000	6.2	0.2
4000	7.0	0.2
5000	7.8	0.2

- (a) Using appropriate scales, plot a graph of Blood cell count against altitude
- (b) Describe the relationship between altitude and
(i) red blood cell count

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(ii) white blood cell count

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(c) Give an explanation for the above relationships

(i) red blood cell count

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(ii) white blood cell count

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(d) What were the red blood cell counts at:

(i) 500m

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(ii) 6000m

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(e) (i) How are red blood cells adapted to carry out their function?

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(ii) What happens to old red blood cells in the body?

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32. (a) What do you understand by the terms:

(i) mitosis?

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(ii) Meiosis?

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(b) Where does each of the above occur?

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(c) Give the importance of mitosis to a living organism.

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33. (a) In the space below, make a labeled diagram of a motor nerve

(b) Give the function(s) of any four (4) parts indicated on your diagram.

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(c) State any 3 structural differences between motor and sensory nerve fibres

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SECTION C

34. (a) Give the different types of skeletons and explain what is meant by each

(b) Explain the importance of a skeleton to an organism

35. (a) Give the adaptations of

- (i) Insects pollinated flowers
- (ii) Wind pollinated flowers

(b) Describe the various mechanisms by which self-pollination may be prevented.

END