



*Dr. Blosa Science*

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## SENIOR FOUR

553/1

## BIOLOGY

## PAPER 1

## EXAM 16

TIME: 2 ½ HOURS

### Instructions:

Answer all questions in section A and B, plus two questions in section C.  
Section A circle the correct alternative.  
Answers to section C must be written on the answer booklets provided.

### For Examiner's use only

SECTION/QUESTION	MARKS
A	
B	
C	
TOTAL	

### SECTION A:

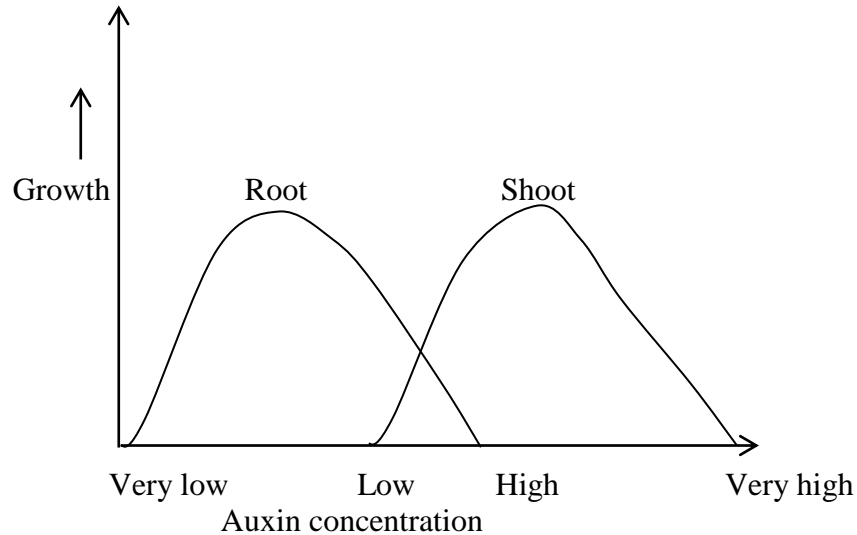
- Which of the following is a viral disease?  
A: typhoid                      B: polio                      C: tetanus                      D: syphilis
- What happens to a person after consuming food with high salt content?  
A: Osmotic pressure of his blood decreases  
B: a lot of ADH will be produced by his pituitary glands  
C: much urine will be produced  
D: less ADH will be produced.
- If the contents of blood capillary in a villus of a man is analysed, it will be found to have



14. A nocturnal bird was found to have a retina composed entirely of rods. This means that it  
 A: has good colour vision                      B: has accurate vision in dim light  
 C: can judge distance very well              D: can only focus on distant objects.

15. Which of the following is not carried in blood?  
 A: amino acids                                      B: carbon dioxide  
 C: secretin    D: Trypsin

16. The graph below shows the effect of auxin concentration on growth of root and shoot



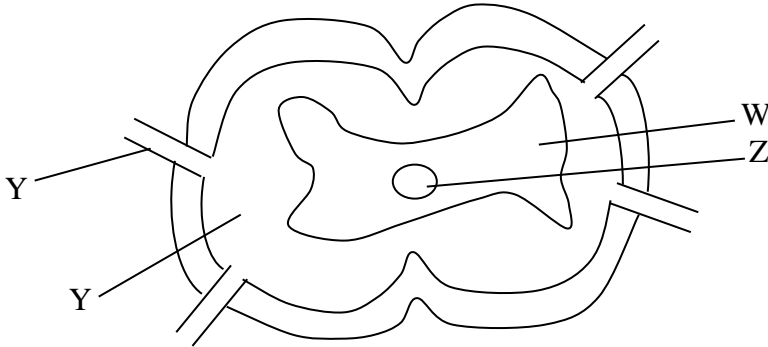
From the graph we can say that

- A: shoots require a higher auxin concentration than roots for maximum growth  
 B: very low auxin concentration is most effective on root growth  
 C: very high auxin concentration is favourable to growth of shoot  
 D: Auxin concentration which retards root growth also retards shoot growth.
17. Which of the following is true about protozoa;  
 A: all parasites  
 B: the simplest animals  
 C: Autotrophs  
 D: unicellular organisms.
18. By which one of the following processes does carbon dioxide pass through leaf stomata?  
 A: Osmosis              B: Diffusion              C: absorption              D: transpiration
19. Which of the following does not carry oxygen in blood of its body?  
 A: bee                      B: fish                      C: snake                      D: Earthworm
20. During a reflex action, the following takes place  
 1. impulse crosses the synapse  
 2. impulse passes along sensory neurone  
 3. receptors which are affected by a stimulus set up impulses  
 4. impulse passes along motor neurone to motor organ.

Which one of the following is the correct order?

- A: 1,2,3,4              B: 3,2,1,4              C: 2,3,4,1              D: 4,2,1,3

21. In an ecosystem, the organisms with the least energy in their bodies are  
 A: producers                                      B: primary consumers  
 C: secondary consumers                        D: tertiary consumers
22. Which of the following is found only in the fore limb of the mammalian skeleton?  
 A: Tibia                      B: patella                      C: carpal                      D: metatarsal
23. Which of the letters on the diagram below represents the grey matter?



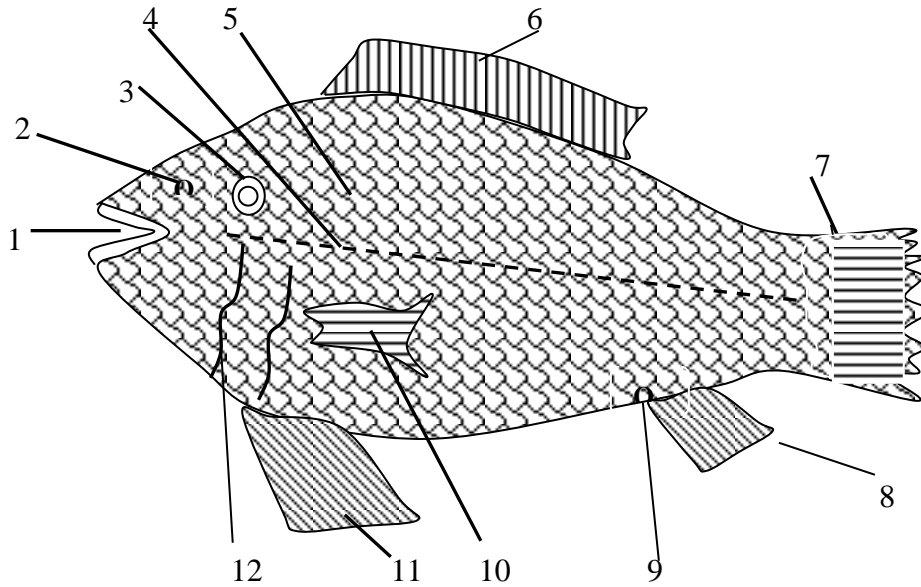
- A: W                                      B: X                                      C: Y                                      D: Z

24. What are the products of hydrolysis of maltose  
 A: Galactose and fructose                      B: Glucose and galactose  
 C: Glucose only                                      D: Glucose and fructose
25. Which of the following is an example of an endocrine gland in man?  
 A: Adrenal                                      B: Brain                                      C: lymph node                                      D: liver
26. Which of the following types of feathers is most widespread?  
 A: covert feather                                      B: filloplumes  
 C: Quill feathers                                      D: down feathers.
27. In which part of the green flowering plant does meiosis occur?  
 A: seed                                      B: flower                                      C: fruit                                      D: shoot apex.
28. Short sightedness is caused by the  
 A: lens becoming thicker                                      B: suspensory ligament becoming shorter  
 C: contraction of the ciliary muscles                                      D: expansion of the iris muscles.
29. Which of the following is true about nastic response?  
 A: depends on the direction of the stimulus  
 B: does not involve hormones.  
 C: the direction of a response is not determined by direction of stimulus  
 D: does not involve growth
30. In an experiment to estimate the percentage of air in a sample of soil, a student poured  $50 \text{ cm}^3$  of dry soil in measuring cylinder and then added  $50 \text{ cm}^3$  of tap water. The final volume of soil and water was  $75 \text{ cm}^3$ . What was the percentage of air in the sample?  
 A: 25%                                      B: 40%                                      C: 60%                                      D: 75%



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32.



(a) Label parts 1 to 12.

- 1. ....
- 2. ....
- 3. ....
- 4. ....
- 5. ....
- 6. ....
- 7. ....
- 8. ....
- 9. ....
- 10. ....
- 11. ....
- 12. ....

(b) What is the habitat of the fish above.

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(c) What are the functions of the parts labelled 4, 7 and 10

- 4. ....
- .....

7.....  
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10.....  
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(d) Explain two adaptive features for locomotion in the animal above

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33. (a) Distinguish between the following terms

(i) Phenotype and Genotype

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(ii) Dominant gene and Recessive gene

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(b) A heterozygous tall man married a dwarf woman. The gene for tallness is dominant over that for dwarfness. Using suitable symbols, work out the proportions of the possible genotypes and phenotypes of their first filial generation.

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(c) Give three benefits of studying human genetics

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**SECTION C:**

- 34. (a) What is locomotion?  
(b) Explain the adaptations of birds to flight
  
- 35. (a) What is tropism?  
(b) Describe an experiment to demonstrate hydrotropism in plant roots and shoots.  
(c) Give two importance of tropism to plants
  
- 36. (a) Explain the value of earthworms in maintaining a condition suitable for crop growing.  
(b) How does clay affect the fertility of soil?
  
- 37. (a) Name the constituents of the mammalian blood  
(b) Give three structural differences between an artery and a vein  
(c) What are the differences in blood contents between the blood carried by hepatic portal vein and hepatic vein?

END