Name:…… ……

Biology Paper 1

End of Term 1 Examination 2018

Senior Three

Biology Paper 1

Time:2 ½ hrs.

Instructions:

Answer **all** questions in Sections A and B, plus **two** questions from Section C.

For Section A, write the letter corresponding to the correct answer, in the answer sheet provided below.

For section B, write the answers in the spaces provided.

For section C, write the answers on the answer sheets provided.

ANSWER SHEET FOR SECTION A

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

SECTION: A

1. Why do most terrestrial organisms excrete uric acid instead of ammonia?
   A. To conserve water
   B. Uric acid is not toxic.
   C. Ammonia is less soluble than uric acid.
   D. The lower the toxicity the more the water needed.

2. What are the main requirements of ultra filtration?
   A. Afferent vessel, bowman's capsule.
   B. Filtering barrier, low pressure.
   C. Capillary wall, afferent arteriole being wider than efferent arteriole.
   D. High pressure, afferent arteriole narrower than afferent arteriole.

3. The immunity acquired by the transfer of antibodies from one individual to another is called
   A. Passive natural immunity
   B. Active natural immunity.
   C. Active artificial immunity.
   D. Passive artificial immunity

4. What can reduce the diffusion distance at a respiratory surface in all organisms?
   A. Dense capillary network
   B. moisture
   C. Large surface area
   D. Thin epithelium

5. When a potato cylinder is put in a solution, it becomes swollen and rigid because the sap is
   A. hypertonic
   B. hypotonic
   C. isotonic
   D. concentrated

6. Identify the process that would not occur if a cell lacks mitochondria.
   A. Respiration
   B. Glycolysis
   C. Kreb's cycle
   D. Photosynthesis

7. The condition in which the female part of a flower matures before the male part is called
   A. protogyny
   B. protandry
   C. monoecy
   D. dioecy

8. Which part of the kidney nephron increases the concentration of salts in the medulla?
   A. Proximal convolution
   B. Loop of henle
   C. Distal convolution
   D. Collecting duct.

9. The roots that develop from other parts of a plant other than the radicle are called
   A. Fibrous
   B. Tap
   C. Adventitious
   D. Lateral

10. Why does a cobalt chloride paper fixed on the lower surface of a leaf turn pink before that on the upper side?
   A. There are more stomata on the upper side.
   B. The stomata on the upper side are closed.
   C. Transpiration is lower on the upper side.
   D. Hydathodes are on the lower side only.

11. Which of the following bacteria are responsible for the formation of root nodules in legumes?
   A. Azotobacter
   B. Nitrobacter
   C. Clostridium
   D. Rhizobium

12. The conversion of organic matter to compounds like coal is called
   A. Decay
   B. Fossilisation
   C. Recycling
   D. Decomposition

13. Which of the following is not necessary during inhalation?
   A. Relaxed diaphragm
   B. Internal intercostals muscles relax
   C. Ribcage moves up and outward
   D. Low thoracic pressure

14. The disease that one suffers from when the rate at which tissue fluid is formed is faster than the rate at which it drains into the lymph vessels is called

A. Oedema
B. Filariasis
C. Elephantiasis
D. Eczema

15. What is the chemical role of mastication?
A. Softening food
B. Roll the food into a bolus.
C. Lubricate food
D. Mix food with ptyalin.

16. A rise in blood sugar level can best be explained by lack of
A. Glucagon
B. Insulin
C. Vasopressin
D. Gastrin

17. What is the difference between blood and glomerular filtrate?
A. Blood has urea
B. Blood has erythrocytes
C. Blood has glucose
D. Blood has water

18. A crab and cockroach belong to the same taxon because they have
A. Six legs
B. Two antennae
C. A cuticle
D. Compound eyes.

19. Which of the following groups has nitrogenous excretory products?
A. Urea and salts
B. Uric acid and ammonia
C. Carbondioxide and water
D. Trimethylamine oxide and salts

20. What is the role of a dense capillary network at a respiratory surface?
A. To take away carbondioxide
B. To increase surface area
C. To bring oxygen
D. To create a concentration gradient.

21. What is the name of one of the lignified tissues?
A. phloem B. companion cell
C. sieve tube D. xylem

22. The pepsin enzyme cannot function in the duodenum because
A. There is no protein in the duodenum.

B. Pancreatic juice has no pepsin.
C. Pancreatic juice has sodium bicarbonate.
D. There is trypsin in the duodenum.

23. What do Rhizobium bacteria gain in their association with leguminous plants?
A. Host
B. Heat
C. Shelter
D. Nitrate.

24. Why is yeast important in a bakery?
A. Yeast is aerobic
B. carbondioxide is a by product of anaerobism.
C. Ethanol is a by product of anaerobism
D. Yeast in unicellular

25. What is the role of vasopressin in osmoregulation?
A. Makes the distal more permeable to salts.
B. Makes the collecting duct less permeable to water.
C. Lowers the osmotic pressure of blood.
D. Raises the osmotic pressure of blood.

26. Which of the following parts controls the quantity of light entering a light microscope?
A. Diaphragm
B. Condenser
C. Mirror
D. Eye piece

27. Which of the following vessels has the highest content of urea?
A. Renal vein
B. Renal artery
C. Hepatic artery
D. Hepatic portal vein

28. Soil that has a high content of humus has
A. Low capillarity
B. Low water holding capacity.
C. Low leaching
D. Low productivity.

29. The main agent of chemical weathering is
A. Heat and cold
B. Plant roots and lichens.
C. Carbondioxide and water
D. Sulphuric acid and heat.

30. The characteristic that shows that a living organism can get rid of toxic substances is

A. Respiration B. Egestion

C. Excretion D. Locomotion

SECTION: B

31. In an investigation, two persons A and B drank the same amount of a glucose solution. Their blood sugar levels were determined immediately and thereafter at intervals of one hour for the next six hours. The results were as shown in the following table.

	Blood glucose level (mg/100ml)	
Time (hours)	**Person A**	**Person B**
0	90	120
1	220	360
2	160	370
3	100	380
4	90	240
5	90	200
6	90	160

a) Use same axes to present the information in the table graphically.

b) Give reasons(s) for each of the following observations.

i) Blood sugar level increased in person A between O and 1 hour

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ii) The blood sugar level decreased in person A between 1 and 4 hours

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c) From the graph, what is the normal blood sugar level for human being?

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d) Suggest a reason for the high sugar level in person B.

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e) How can the high blood sugar level in person B be controlled?

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f) What is the biological significance of maintaining a relatively constant sugar level in the human body?

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32. a) Draw a well labelled diagram of a palisade mesophyll cell. (5marks)

b) Give five structural differences between the cell in 32 (a) above and a lymphocyte.
(use table) . (5marks)

SECTION: C

34. a) How does the hypothalamus respond to a high osmotic pressure of blood? (5marks)

b) Describe the formation of renal fluid. (5marks)

c) How does the toxicity of an excretory product influence the organism's habitat? (5marks)

35. a) Why are the alveoli the respiratory surface of a mammal? (5marks)

b) Discuss gaseous exchange in a fish. (10marks)

36. a) Explain how temperature affects the rate of an enzyme controlled reaction? (5marks)

b) Describe digestion in the duodenum. (10marks)

End