

BIOLOGY
TIME: 2 HOURS

SENIOR THREE

NAME:.....**CLASS/No.**...../.....

Answer all questions in sections A and B

Attempt any two questions in section C

Answers must be written in the spaces provided for sections A and B

For section C, answers must be written on the Answer sheets provided

FOR EXAMONER'S USE ONLY

SECTION	MARKS
A	
B	
C	
Total	

Answers to sections

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

SECTION A (30 MARKS)

- Which of the following parts of the eye gives it shape?
 - Retina.
 - Blind spot.
 - Aqueous humour.
 - Vitrous humour.
- In which one of the following associations do both organisms benefit?
 - Malarial parasite and human.
 - Tapeworm and human.
 - A fungal parasite and plant.
 - Nitrogen fixing bacteria and leguminous plant.
- Addition of humus to a sandy soil would
 - decrease the capillarity of the soil.
 - increase the aeration of the soil.
 - decrease mineral content of the soil.
 - improve the water retention capacity of the soil.
- By which one of the following processes does carbon dioxide leave the blood capillaries into the alveoli?
 - Osmosis
 - Active transport
 - Diffusion
 - Capillary
- Which one of the following parts of the mammalian ear is concerned with balance?
 - Semi-circular canal
 - Cochlea
 - Eustachian tube
 - Oval window
- When a growing shoot is placed horizontally, it bends upwards after sometime. Which of the following best explains this response?
 - High auxin concentration on the upper side inhibits growth on the upper side.
 - High auxin concentration on the lower side makes the lower side grow faster.
 - Lack of auxin on the upper side inhibits growth on the upper side.
 - Low auxin concentration on the lower side makes the lower side grow faster.
- Which one of the following excretory products is removed from the body by the kidney?
 - Urea, excess water and excess salts.
 - Urea, excess water and carbon dioxide.
 - Carbon dioxide, excess water and excess salts.
 - Carbon dioxide, urea and excess salts.
- Which one of the following pairs of organs is important in the digestion of fats?
 - Stomach and liver
 - Pancreas and stomach
 - Liver and pancreas
 - Stomach and mouth

9. Which one of the following is a likely effect of a decrease in the number of platelets in the blood?
- The blood may not be able to carry enough oxygen.
 - There may be prolonged bleeding in case of an injury.
 - The body may not be able to fight disease.
 - The body may not be able to distribute heat efficiently.
10. Which one of the following characteristics is unique to only insects?
- Possession of three thoracic segments
 - Possession of an exoskeleton
 - Possession of compound eyes
 - Possession of antennae
11. Which one of the following stimulates the reabsorption of water in the kidneys?
- Adrenaline
 - Antidiuretic hormone
 - Thyroxine
 - Insulin
12. The best explanation for panting of an athlete immediately after a race is to
- allow fast blood flow to the lungs.
 - restore the used up energy.
 - take in more oxygen.
 - allow fast blood flow from the muscles.
13. Which one of the following vertebrae has vertebral arterial canals?
- Thoracic vertebra
 - Lumbar vertebrae
 - Caudal vertebrae
 - Cervical vertebrae
14. Which of the following conditions increase the rate of transpiration?
- High temperatures, windy conditions and high humidity.
 - Low temperatures, windy conditions and high humidity.
 - High temperatures, low humidity and windy conditions.
 - Low temperatures, low humidity and still air.
15. Which of the following parts of a microscope magnify the object?
- Eyepiece and mirror.
 - Objectives lens and mirror.
 - Eye piece and objective lens.
 - Eye piece and fine adjustment.
16. Which one of the following shows the correct order of cell organization?
- Organism → system → organ
 - Tissue → organ → organism
 - Organ → tissue → organism
 - Tissue → organ → system

17. Which one of the following is a long term adaptation of mammals to low temperature environment?
- A. falling of hair.
 - B. Increase in metabolic rate.
 - C. Deposition of fats under the skin
 - D. Reduction of blood flow to the skin
18. Which of the following are the end products of the digestion one cane sugar?
- A. Glucose and fructose
 - B. Glycerol and fructose
 - C. Fructose and galactose
 - D. Galactose and glucose
19. Which of the following statements is biologically true about lymphatic system flow?
- A. Facilitated by the pumping action of the heart.
 - B. Takes place in one direction only from heart to the tissues.
 - C. Takes place in one direction only from tissues to the heart.
 - D. Takes place in one direction only from the lymph nodes to the tissues.
20. Clay soil is usually water logged due to
- A. Too much water
 - B. Small soil particles
 - C. A higher force of capillarity.
 - D. Poor drainage
21. From which of the following regions of the body would you find vertebrae with long neural spine
- A. Thoracic
 - B. Lumbar
 - C. Cervical
 - D. Sacral
22. Which one of the following statements is true?
- A. Motor neurons transmit impulses from spinal cord to brain.
 - B. Motor neurons transmit impulses from central nervous system to effectors of the body.
 - C. Motor neurons transmit impulses from effectors of the body to the central nervous system.
 - D. Motor neurons are found only in the central nervous system.
23. Eating excess proteins at one meal is wasteful because;
- A. Proteins are body building foods and very little is required to build cells.
 - B. Excess proteins are only used to repair broken down cells.
 - C. Excess proteins cannot be stored in the body.
 - D. Excess proteins are harmful to be circulatory systems.
24. Individuals with blood group O are said to be universal donors because they have
- A. No antibodies
 - B. No antigens
 - C. Both antigens A and B.

- D. Both antigens and antibodies.
25. Which one of the following veterbrae has an odontoid process?
 A. Thoracic Vertebra
 B. Lumbar Vertebra
 C. Axis Vertebra
 D. Atlas Vertebra
26. Which one of the following does not use its blood to carry oxygen
 A. Insects
 B. Earthworms
 C. Birds
 D. Amphibians
27. A student noted the following characteristics on a vertebra bone.
 (i) long neural spine.
 (ii) wide neural canal.
 (iii) short transverse process.
 The vertebra was
 A. Cervical
 B. Atlas
 C. Thoracic
 D. Lumbar
28. The order in which vibrations pass through the ear ossicles is from;
 A. Stapes to incus to melleus
 B. Melleus to incus to stapes
 C. Incuss to melleus to stapes
 D. Incus to stapes to melleus
29. Which one of the following sets consists of only dry indehiscent fruits
 A. Achne, cypsela, nut.
 B. Caryopsis, legume, capsule
 C. Achne, follicle and legume.
 D. Schizocarp, capsule and caryopsis
30. Which one of the following is a tactic response
 A. Bending of plant shoot towards light
 B. Growth of a root towards water
 C. Withdrawal of a blowfly larva from light
 D. Rolling up of leaves on being touched

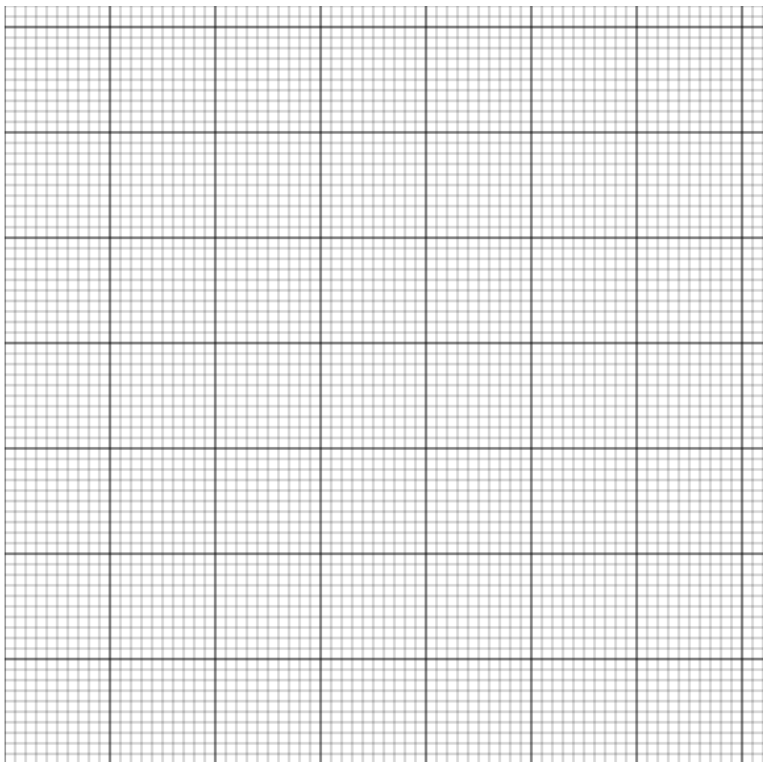
SECTION B (40 MARKS)

31. The table below shows the rate of photosynthesis in a green house plant at varying light intensities and temperature of 30°C.

Table

Light intensity (arbitrary units)	0	2	3	4	5	6
Rate of photosynthesis (arbitrary units)	0	10	15	18	20	20

(a) Plot a graph in the space below, to represent the data (07 marks)



(b) Describe the trend in the rate of photosynthesis. (03 marks)

.....

.....

.....

.....

(c) Explain the changes in the rate of photosynthesis. (06 marks)

.....

.....

.....

.....

(d) Suggest and explain
(i) what happens to the rate of photosynthesis if the experiment is repeated at temperature of 20⁰C (02 marks)

.....

.....

.....

(ii) how the rate of photosynthesis can be increased in a green house plant. (01 mark)

.....

.....

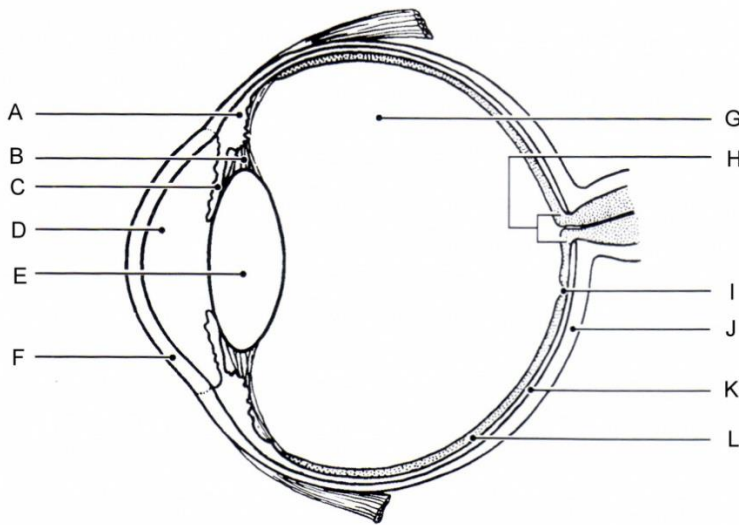
.....

(e) Outline **one** way in which the process of photosynthesis benefits plants. (01 mark)

.....

.....

32. a) The figure below is an organ in man



(a) identify the sense organ (1 mark)

.....

(b) what stimuli does the organ respond to (1 mark)

.....

(c) Name the parts labelled (3 marks)

A.....

B.....

H.....

I.....

J.....

L.....

(d) Which parts labelled are involved in bending of the light before it reaches the retina (01 mark)

.....

(e) Describe the adjustments on the following parts while viewing a distant object (2 marks)

B.....
.....
.....

E.....
.....
.....

(f) Give two functions of part labelled K (2 marks)

.....
.....
.....
.....

SECTION C (30 MARKS)

33.a) What is transpiration? (01 mark)

b) Outline any five environmental factors which affect the rate of transpiration (05 marks)

c) Explain how Xerophytes reduce water loss (9 marks)

34.a) Describe three types of skeletons in organisms giving an example in each (07 marks)

b) Describe any four functions of the human skeleton to the body (08 marks)

END