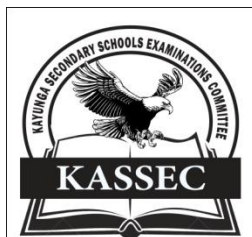


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553/1
BIOLOGY
THEORY
JULY – AUGUST
2 ½ Hours



KAYUNGA SECONDARY SCHOOLS EXAMINATIONS COMMITTEE (KASSEC)
Uganda Certificate of Education
JOINT MOCK EXAMINATIONS 2019
BIOLOGY THEORY
2 Hours: 30 Minutes

INSTRUCTIONS TO CANDIDATES

- Answer all questions in sections **A** and **B**, plus **two** questions in section **C**.
- For section **A**, write the answers in the boxes provided. For section **B**, write answers in the spaces provided. For section **C** write the answers on the answer sheets provided.

FOR EXAMINERS USE ONLY

SECTION		MARKS	EXAMINERS' SIGNATURE
A			
B	31		
	32		
	33		
C			
TOTAL			

SECTION A (30 MINUTES)

Write the letter representing the most correct alternative in the box provided.

1. The following plant parts belong to the same group **EXCEPT**.
A. Corm.
B. Irish potato tuber.
C. Rhizome.
D. Cassava tuber.

2. The part of mammalian skin containing melanin pigment is called.
A. Malpighian layer.
B. Cornified layer.
C. Subcutaneous layer.
D. Granular layer.

3. The size of the soil particles of a soil having the highest capillarity is.
A. 0.2 to 0.02 mm.
B. 2.0 to 0.02 mm.
C. 0.02 to 0.002mm.
D. Less than 0.002 mm.

4. Reabsorption of glucose in the kidney nephron occurs in
A. Descending loop of Henle.
B. Ascending loop of Henle.
C. Proximal convoluted tube.
D. Distal convoluted tube.

5. Fig. 1 is a cross section of a plant part.

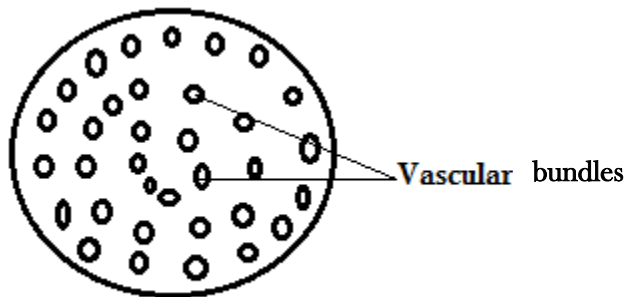


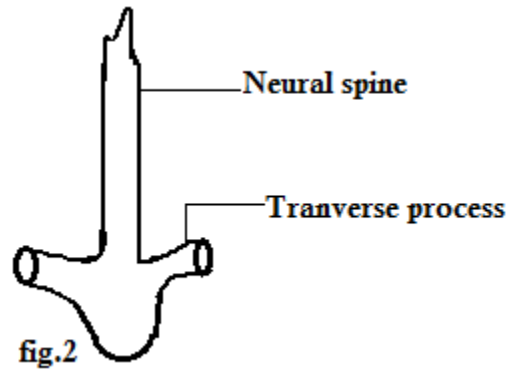
fig.1

- Which one of the following is represented the section shown above?
- A. Root of monocotyledonous plant.
 - B. Root of dicotyledonous plant.
 - C. Stem of monocotyledonous plants.
 - D. Stem of dicotyledonous plant.
-

6. In which one of the following organisms does Budding occur?
A. Mucor.
B. Yeast.
C. Amoeba.
D. Spirogyra.
7. Of the following methods, the one used to estimate the population of butterflies is
A. Capture – release – recapture.
B. Line transect.
C. Direct count
D. Quadrat
8. Which of the following are the end products of sucrose hydrolysis?
A. Glucoses and Galactose
B. Glucose and lactose
C. Fructose and Galactose.
D. Glucose and fructose.
9. A plant tissue placed in a concentrated sugar solution will
A. maintain original length and texture
B. Shorten and harden.
C. Shorten and soften.
D. Lengthen and soften
10. The most common air pollutant is.
A. Herbicides.
B. Smoke.
C. Dust.
D. Fungicides.
11. Excess amino acids in blood are removed by.
A. Kidney.
B. Spleen.
C. Gall bladder.
D. Liver.
12. Which one of these below is **NOT** a blood function in mammals?
A. Regulation of sugar level in the body.
B. Regulation of body temperature.
C. Transportation of digested food substances.
D. Transportation of gases.
13. The animal in which expired air and inspired air have different routes is
A. Mammal
B. Reptile
C. Bony fish
D. Bird.

14. When the Ciliary muscles of the mammalian eye contract the lens becomes.
- A. Thinner and eyes see near object.
 - B. Thinner and eyes see far object.
 - C. Thicker and eyes see far object.
 - D. Thicker and eyes see near object.

15. Fig.2 shows structure of a vertebra. From which region of a mammalian vertebral column was obtained.



- A. Thoracic
- B. Neck
- C. Lumbar
- D. Sacral

16. Unlike catalysts, enzymes
- A. Speed up reaction.
 - B. are needed in small quantities.
 - C. are affected by temperature changes.
 - D. are protein in nature.

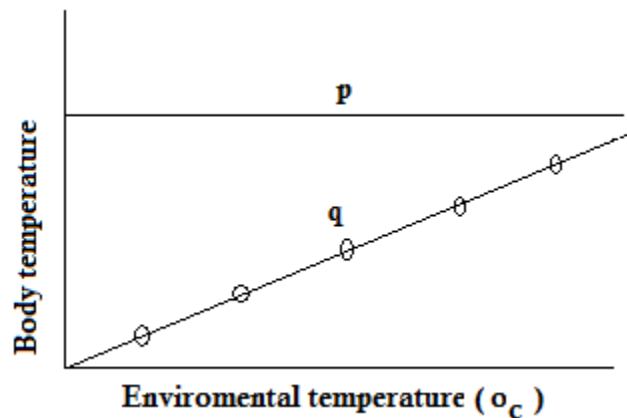
17. During an experiment to test for starch in a leaf boiling the leaf in alcohol aims at
- A. Softening the leaf.
 - B. Breaking up starch granules.
 - C. Removing chlorophyll.
 - D. Speeding up reaction with iodine.

18. Which one of the following is of **least** importance in flight of birds?
- A. Quill feathers.
 - B. Down feathers
 - C. Pectoral feathers
 - D. Hollow bones

19. The bacteria contained in root nodules of leguminous plants survive as
- A. Commensals.
 - B. Parasites.
 - C. Saprophytes.
 - D. Symbionts

20. Which one of the following does **NOT** belong to the group?
- A. Tracheal system.
 - B. Gill filaments.
 - C. Alveoli
 - D. Tracheoles
-
21. During a vigorous activity, lactic acid accumulates in the muscles because
- A. the blood vessels supplying the muscles are constricted.
 - B. much of the glycogen is broken down to glucose.
 - C. the oxygen supply to the muscles may not be enough.
 - D. Carbohydrates in blood are completely broken down
-
22. A person of blood group O is referred to as a universal donor because the blood.
- A. contains both antibodies a and b.
 - B. is recessive to blood group A and B.
 - C. has no antigens to be attacked by antibodies.
 - D. can be given to any other blood group.
-
23. Of the following, the set that contains only characteristics of continuous variation is
- A. intelligence, albinism.
 - B. intelligence, Body weight.
 - C. Tongue rolling, blood group.
 - D. Height, sex.
-

24. The graph below shows how the body temperature of two animals varies with that of the environment.



Which one of the following is a correct statement for the graph?

- A. Animal **q** is a homoiotherm while p is a poikilothermic.
 - B. Animal **q** is a dapted to environment better than animal p.
 - C. Animal **p** is adapted to environment better than animal q.
 - D. Animal **p** is a homoiotherm while animal q is a poikilothermic.
-

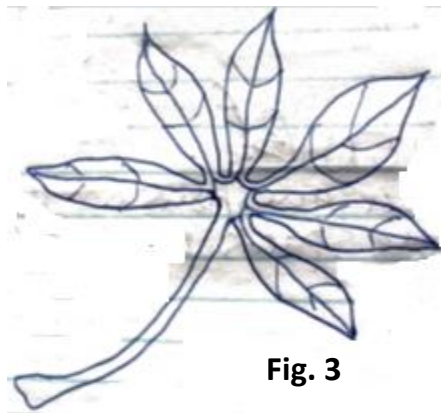
25. In a plant cell, movement of water from cell A to cell B means that.

- A. Cell A contents were hypertonic to those of cell B.
- B. Cell A contents were hypotonic to contents of cell B
- C. Cell A and cell B had isotonic contents.
- D. Cell B contents were hypertonic to those of cell A.

26. Weaning followed by a diet of mainly carbohydrates in humans is likely to cause

- A. Kwashiorkor.
- B. Pellagra.
- C. Rickets.
- D. Beri-beri.

27. Which leaf type is shown in fig.3 below?



- A. Simple entire.
- B. Simple palmate.
- C. Compound palmate.
- D. Compound bipinnate

28. The following organisms can be grouped together **EXCEPT**.

- A. Butterfly.
- B. Grasshopper.
- C. Beetles.
- D. Spider.

29. The dental formula of a sheep is represented by

- A. $I \frac{3}{3} \quad C \frac{0}{0} \quad Pm \frac{3}{3} \quad M \frac{2}{2}$
- B. $I \frac{2}{2} \quad C \frac{1}{1} \quad Pm \frac{2}{2} \quad M \frac{3}{3}$
- C. $I \frac{0}{2} \quad C \frac{0}{0} \quad Pm \frac{3}{3} \quad M \frac{3}{3}$
- D. $I \frac{2}{2} \quad PM \frac{2}{2} \quad M \frac{3}{3}$

30. The effect of light on auxin distribution at the tip of a plant shoot is to
- A. Concentrate auxins on the dark side of the shoot tip.
 - B. Concentrate auxins on the illuminated side of the shoot tip.
 - C. Reduce level of secretion of the auxins.
 - D. Cause equal distribution of auxins at the shoot tip.



SECTION B

Answer all questions in this section.

Write in the spaces provided.

31. An ecological study was carried out to find the number of fish eagles living on Lake Victoria over a period of 20 years. The results obtained are shown in the table below. Use them to answer questions that follow.

Time in years	Number of fish eagles
0	2
4	4
8	19
12	79
16	378
18	524
20	537

- (a) Plot a suitable graph to show the results.

(06 marks)

(b) From the graph state the;
(i) Probable age of reproduction for the fish eagle. (01 mark)

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.....

(ii) number of fish eagles after 14 years of the study. (01 mark)

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(c) Explain the shape of the graph obtained. (08 marks)

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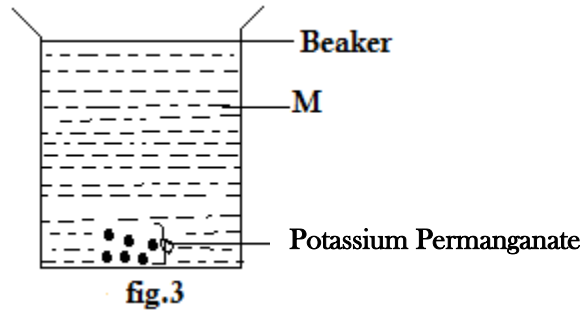
(d) (i) Suggest what would happen to the number of eagles in the next 10 years. (02 marks)

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(ii) On the same graph sketch what will happen in the next 10 years. (02 marks)

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32. An experiment was set up as shown below to investigate a physical process. It was left for 15 minutes on a flat surface.



- (a) Name part marked M. (01 mark)

M.....

- (b) State the purpose of the experimental set up above. (01 mark)

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- (c) (i) Using arrows indicate what was observed during the 15 minutes. (01 mark)

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- (ii) Explain the observation after 15 minutes. (03 marks)

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(d) Draw a set up for a control experiment in the space below

(02 marks)

(e) Giving one example, suggest the importance of the physical process being investigated in fig.3 to living organisms. (02 marks)

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33. Fig.4 below illustrates how a reflex action can be caused in humans. Study it and answer questions that follow.

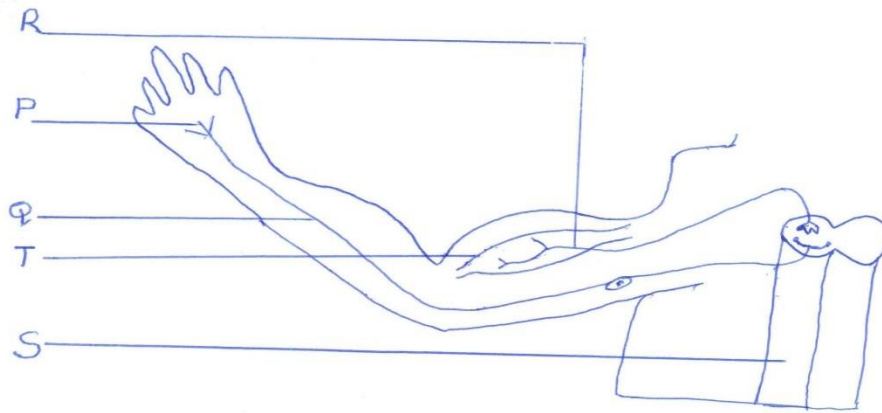


Fig. 4

- (a) What is;
 (i) a reflex action? (02 mark)

.....

- (ii) represented in fig.4 Above? (01 marks)

.....

- (b) Name parts marked P to S. (02 marks)

(i) P.....

(ii) Q.....

(iii) R.....

(iv) S.....

- (c) By means of arrows show the direction of impulse flow on fig.4 above. (01 mark)

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(d) (i) What is structure marked T on fig.4 above (01 mark)

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(ii) Describe what happens to structure T on stimulation. (02 marks)

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.....
(e) Give one importance of reflex action to the body of animals. (01 mark)

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SECTION C (1 HOUR)

Answer any two questions.

Write your answers on the answer sheet provided.

34. (a) Define the term cross pollination. (02 marks)
(b) Explain five features of flowers pollinated by insects. (10 mark)
(c) How are flowers of value to human life? (03 marks)

35. (a) Describe the digestion of roasted meat in the human alimentary cannal. (12 marks)
(b) How are the products of the above digestion important to human life? (03 marks)

36. (a) Using labeled drawings where possible, describe the different types of leaves in plants. (12 marks)
(b) How are plant leaves important in nature? (03 marks)

37. (a) What is anaerobic respiration? (02 marks)
(b) How is anaerobic respiration different from aerobic respiration? (05 marks)
(c) Of what importance is anaerobic respiration to humans? (08 marks)

END