# FORM THREE HOLIDAYS SMART PASS

# BIOLOGY PP2 10 QUESTION PAPERS




# FORM 3 HOLIDAYS SMART PASS

# BIOLOGY PP2

# TEN QUESTION PAPERS

Prefer Calling Amobi Group of Examiners

@ 0743 333 000 OR 0706 851 439

For Marking Schemes

*N/B In Response to the Huge Costs Associated in Coming Up with Such/Similar Resources Regularly, We inform us All, MARKING SCHEMES ARE NOT FREE OF CHARGE. However Similar QUESTIONS, Inform of soft Copies, are Absolutely FREE to Anybody/Everybody. Hence NOT FOR SALE*

*by Amobi Group of Examiners.*

# CALL AMOBI GROUP OF EXAMINERS @ 0743 333 000 OR 0706 851 439 TO ACQUIRE :



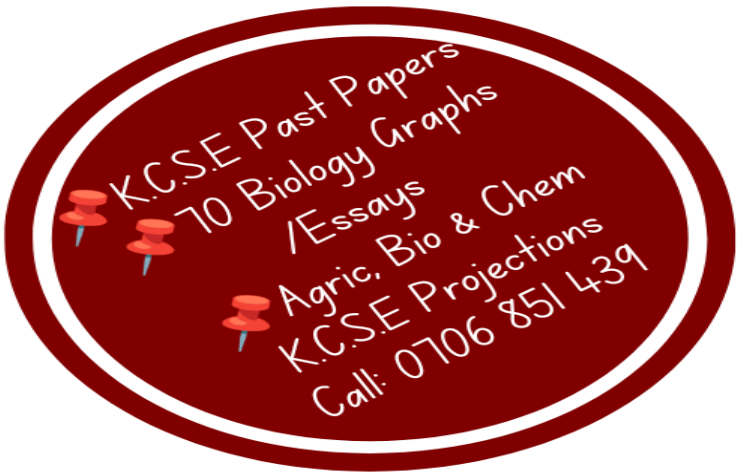










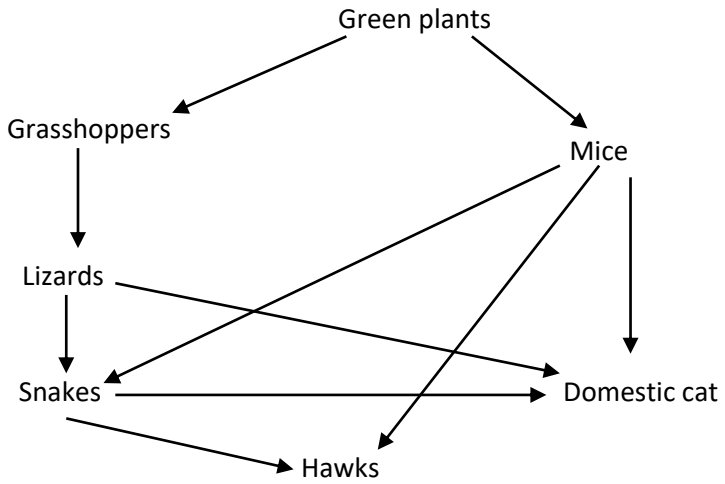





# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 01

## SECTION A: (40 MARKS)

**1.** The chart below represents a food web. Use it to answer the questions that follow.




**a)** Construct two food chains ending with tertiary consumer in each case. **(2mks)**

**b)** Which organism has the largest variety of predators in the food web? **(1mk)**

**c)** Name secondary consumers in the food web. **(1mk)**

**d)** Suggest three ways in which the ecosystem would be affected if there was a prolonged drought. **(3mks)**

**2.** To estimate the population size of crabs in a certain lagoon, traps were laid at random 400 crabs were caught, marked and released back into the lagoon. Four days later traps were laid again and 374 crabs were caught. Out of the 374 crabs, 80 were found to have been marked.

**a)** Calculate the population size of crabs in the lagoon. **(2mks)**

**b)** State three assumptions that were made during the investigation. **(3mks)**

**c)** What is the name given to this method of estimating the population size? **(1mk)**

**d)** Other than the method named above, state any other two methods that are used to estimate population size. **(2mks)**

**3. (a)** Classify the bean plant in to each of the following taxa. **(3mks)**

**(i)** Kingdom .....

**(ii)** Division.....

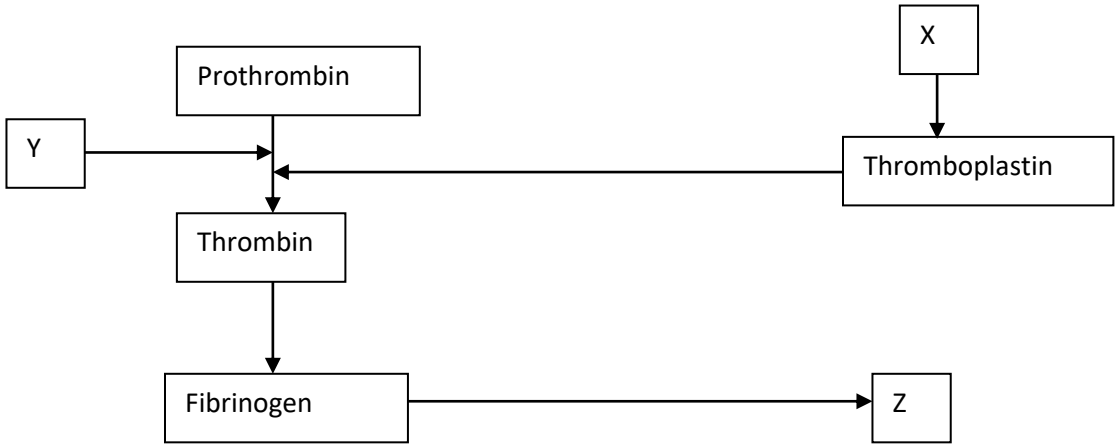
**(iii)** Class .....

**(b)** Name the microscopic living threads that make up the body of a fungus. **(1mk)**

**c)** State the structural differences between Gymnospermatophyta and Angiospermatophyta. **(4mks)**


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**4.** The chart below is a summary of blood clotting mechanisms in man.




**a)** Name

**i)** The blood cells represented by X. ..... **(1mk)**

**ii)** Metal ion represented by Y. ..... **(1mk)**

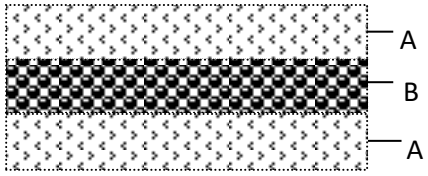
**b)** Identify product Z and state its significance. ..... **(2mks)**

**c)** Name the process by which the human body naturally stops bleeding. **(1mk)**

**d)** How can low blood volume be brought back to normal? **(2mks)**

**e)** Give a reason why blood doesn't clot in unwounded blood vessels. **(1mk)**

**5.** The diagram below represents the general appearance of a section of the cell membrane under an electron microscope.




**a)** State the possible composition of layers A and B. **(2mks)**

**b)** What is the significance the structure A in the membrane? **(2mks)**

**c)** State **two** properties of the cell membrane that make it efficient in its functions**.** **(2mks)**

**d)** Give **two** reasons why an electron microscope is useful in the study of the cell structure**.(2mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

## SECTION B: (40 MARKS)

**6.** The data provided represents populations of a predator and its prey over a fifty years periods.

| Time in years | Population in relative population of P (in thousands) | Numbers population of Q (in thousands) |
|---|---|---|
| 5 | 24.5 | 17 |
| 10 | 30 | 20.5 |
| 15 | 33.5 | 26 |
| 20 | 33.5 | 30 |
| 25 | 31 | 33 |
| 30 | 27 | 32 |
| 35 | 25 | 30 |
| 40 | 29 | 27.5 |
| 45 | 32.5 | 28.0 |
| 50 | 34 | 28.5 |

**a) (i)** Using the same axes, draw graphs of the relative populations of P and Q against time. **(7mks)**

**(ii)** With a reason identify the curve that represents the prey. **(2mks)**

**(iii)** Accounts for the two populations between 25 and 32 years. **(2mks)**

**(iv)** Which years were the two populations equal. **(2mks)**

**(v)** Apart from predation, state three biotic factors that may have led to the decline of the prey population. **(2mks)**

**b)** Describe the hazards of air population by sulphur (IV) oxide. **(4mks)**

**7.** Explain how the mammalian heart is structurally adapted to its functions. **(20mks)**

**8. (a)** Give any two functions of leaves in plants. **(2mks)**

**(b)** Explain how leaves of mesophytes are suited to their functions. **(18mks)**

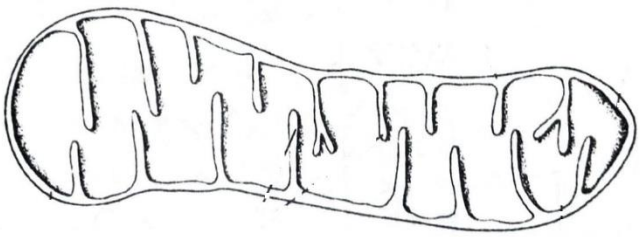


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 02

## SECTION A (40 MARKS)

**1.** The diagram below shows an organelle that is found in most cells. Study it and answer the questions that follow



**a.** **(i)** Name the organelle **(1mk)**

**(ii)** State the function of the organelle in (a) (i) above **(1mk)**

**b.** **(i)** Give the full name of the major chemical compound that is found in the organelle **(1mk)**

**(ii)** Identify the gas that is required in order to form the compound you have stated in (b) (i) above **(1mk)**

**c)** Give the name of the structure labeled H and state its function **(2mks)**

**d)** **(i)** In which cells between spermatozoa or ova would you expect to find a high number of the organelle named in (a) (i) above? **(1mk)**

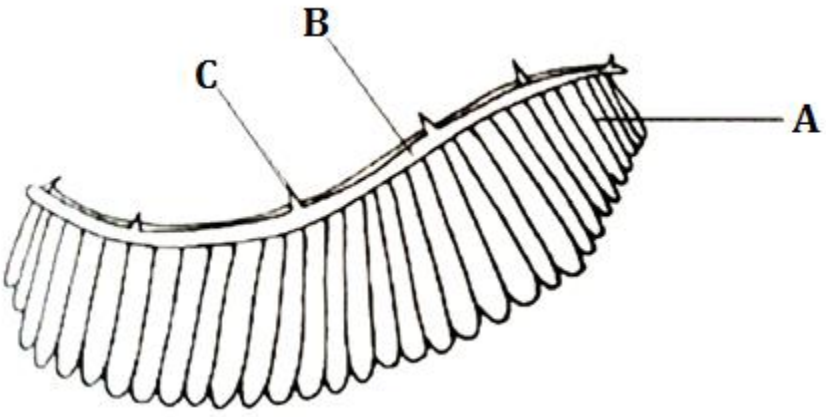
**(ii)** Give a reason for your answer in (d) (i) above **(1mk)**

**2.** **(a)** Name the gaseous exchange structure in the following organisms

(i) Amoeba **(1mk)**

(ii) Grasshopper **(1mk)**

**(b)** The diagram below illustrates the structure of a gill from a bony fish

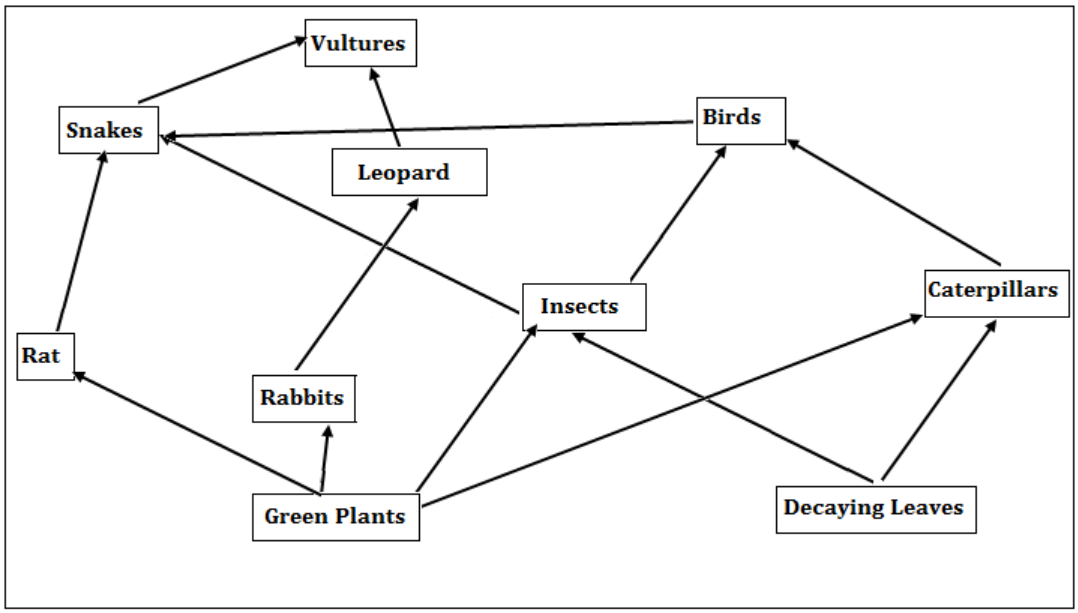





Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes

**(i)** Name the parts labeled A, B, and C **(3mks)**
**(ii)** State the function of the part labeled C **(1mk)**
(**iii**) How is part A adapted to carry out its functions **(2mk)**

**3.** Study the illustration below




**a.** Identify the ecosystem **(1mk)**
**b.** ***(i)*** Which organism has the least biomass in the food web? **(1mk)**
***(ii)*** Explain your answer in (b) (i) above **(1mk)**
**c)** Name the tropic level occupied by the following organisms
***(i)*** Insects **(1mk)**
***(ii)*** Leopards **(1mk)**
**d)** Construct a food chain in which the vulture is a quaternary consumer **(1mk)**
**e)** (i) Name one group of organism not shown in the food web but play an important role in the ecosystem **(1mk)**
(ii) What is the role of the organism you named in (d) (i) above **(1mk)**

**4.** During a biology practical lessons, the teacher provided students with the following apparatus.
-A pooter
-A scalpel
-Specimen bottle
-A pair of forceps
-Sweep net
-Chloroform


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**(a)** Give the precautions the biology teacher gave the student before the practical when collection of specimen begun **(3mks)**

**(b)** What was the function of the following apparatus?

(i) Pooter **(1mk)**

(ii) Sweep net **(1mk)**

(iii) Chloroform **(1mk)**

**(c)** Other than observation, name other two scientific skills developed by studying biology **(2mks)**

**5.** Complete the table below by placing the organism, tick, shrimp, millipede, praying mantis, tsetsefly, crab and spider in the right class and giving a reason in each case **(8mks)**

| Class | Organisms | Reasons |
|---|---|---|
| Diplopoda | | |
| Insecta | | |
| Crustacea | | |
| Arachnida | | |

## SECTION B

**6.** An experiment was carried out to investigate the effect of temperature on the rate of a reaction catalysed by salivary amylase. The Ph was slightly alkaline. The results are shown in the table below

| Temperature | 5 | 10 | 20 | 25 | 30 | 35 | 38 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|
| Rate of reaction | 0.3 | 0.5 | 1.25 | 2.0 | 3.5 | 4.8 | 4.8 | 2.5 | 0.8 |

**a)** On a grid draw a graph of rate reaction against temperature **(6mks)**

**b)** What is the optimum temperature of the enzyme **(1mk)**

**c)** At what temperature was the rate of the reaction 1.4 **(2mks)**

**d)** Account for the shape of the graph between

**(i)** 5°C and 35° C **(2mks)**

**(ii)** 38° C and 50° C **(3mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**e)** How is the hydrochloric acid from the stomach neutralized and where does this occur **(2mks)**

**f)** Name one digestive enzyme in humans that works best in acidic conditions **(1mk)**

**g)** Apart from temperature and pH name other 3 factors that affect enzyme controlled reactions **(3mks)**

**7. (a)** Describe the adaptation of hydrophytes to their photosynthetic function **(10mks)**

**(b)** Explain how mammalian ileum is adapted to perform its function

**8.** Explain how seeds and fruits are adapted to the various methods of dispersal **(20mks)**

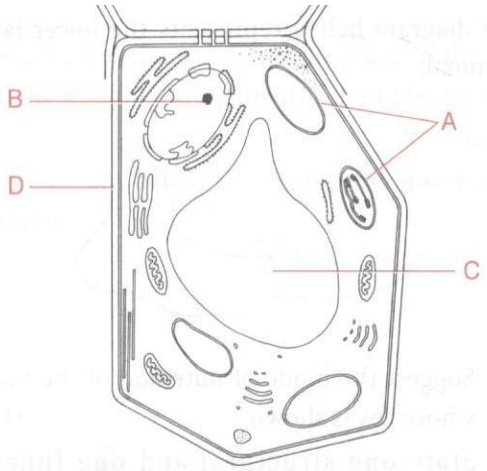


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 03

## SECTION A (40MKS)

**1.** The diagram below represents a cell seen under an electron microscope . Study it and answer the questions that follow




**a) i)** suggest the Kingdom from which the cell shown in the diagram was obtained **(1 mk)**

**ii)** Give two reasons for your answer in (a) (i) **(2mks)**

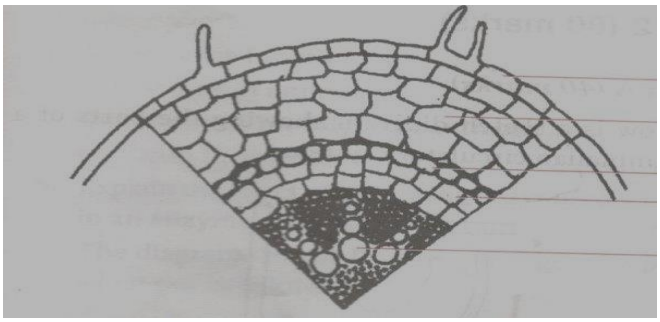
**b)** Name the parts labelled A and B. **(2mks)**

**c)** State the functions of the part labelled C. **(1mk)**

**d)** Name a structure component of the part labelled D . **(1mk)**

**e)** Give one advantage of the electron microscope that makes it more efficient to use than a Light microscope. **(1 mk)**

**2.** The diagram below shows a portion of the transverse section of a root drawn by a form two Student, as seen under a light microscope.



A
B

C
D

**a)** Giving a reason name the class of the plant from which the root was obtained. **(2mks)**

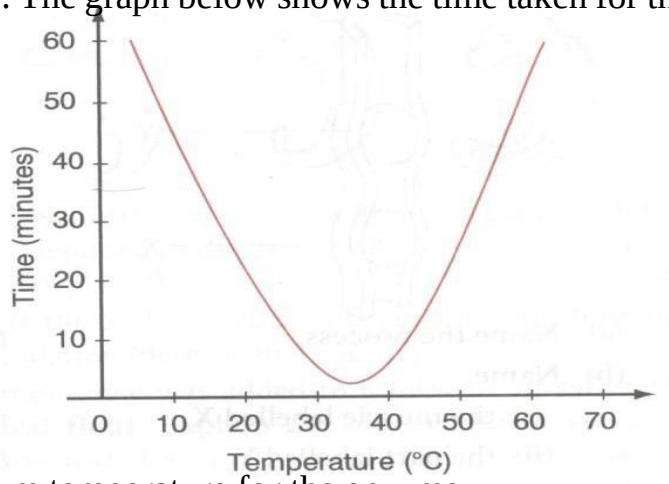
**b)** Name the parts labelled A,B,C,D **(3mks)**

**c)** State the function of parts B, C and D **(3mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**3.** In an experiment to investigate the action of pepsin on egg albums, equal amounts of pepsin were added to equal of egg albumen in different test tubes. The test tube were placed I n water baths at different temperatures. The graph below shows the time taken for the enzymes to digest protein at the temperatures.



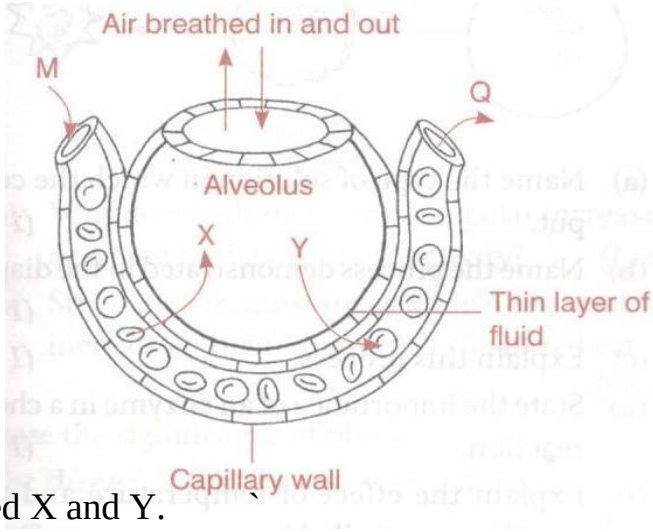

**a)** what is the optimum temperature for the enzyme **(1mk)**

**b)** Account for the time taken to digest egg albumen at 60$^{o}$C **(2mks)**

**c)** With a reason name the form in which enzyme pepsin is secreted **(2mks)**

**d)** State three other factors that affect enzyme controlled reactions **(3mks)**

**4)** The diagram below shows gaseous exchange and flow in the alveolus in the mammalian lungs




**a)** Name the gases labelled X and Y. **(2mks)**

**b)** Explain the difference in concentration of the gases named in (a) at points M and Q **(4mks)**

**c)** Give two reasons why the blood leaving the lungs has less oxygen **(2mks)**

**5a)** State the dangers of smoking cigarettes to the respiratory tract **(3mks)**

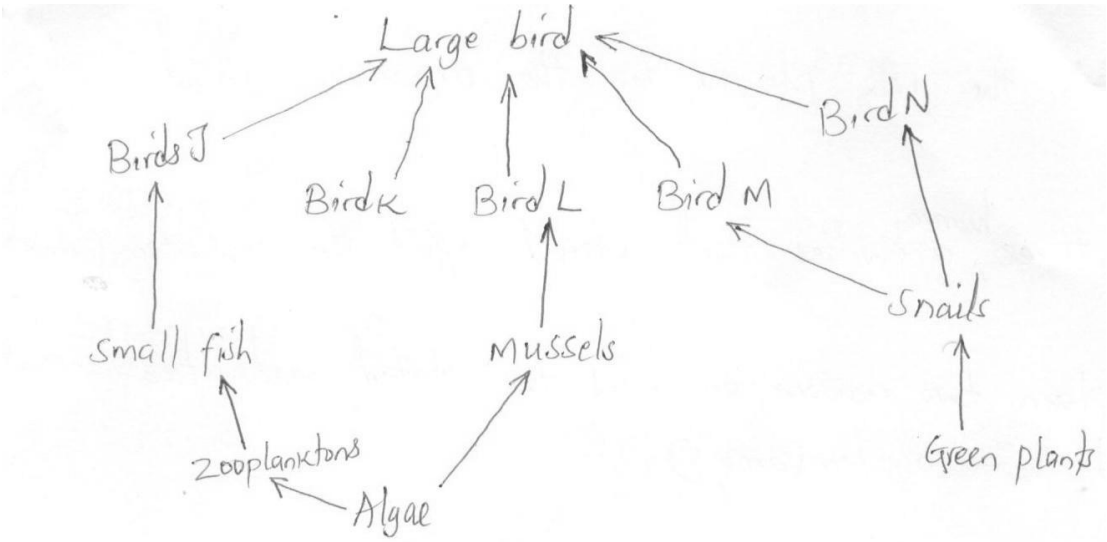
**b)** The gills of a fish and the skin of the frog are efficient in the exchange of gases. Which characteristic do they have in common? **(4mks)**

**c)** What structures do mangroves use for gaseous exchange **(1mk)**


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

## SECTION B (40MKS)

6. After an ecological study of feeding relationships, students constructed the food web below.




**a)** Name the process through which energy from the sun is incorporated into the food web. **(1mk)**

**b)**State the mode of feeding of birds in the food web. **(1mk)**

**c)** Name two ecosystem in which the organisms in food web lives **(2mks)**

**d)** From the information in the food web, construct three food chain with large bird as a quaternary consumer. **(3mks)**

**e)** State three likely possible occurrences that would happen to the organisms in the food web if bird M migrated **(3mks)**

**f)** Not all the energy from one trophic level is available to the next trophic level. Explain **(2mks)**

**g) (i)**Two organisms which play a role in the ecosystem are not included in the food web. Identify the two organisms. **(2mks)**

**(ii)** State the role played by the organisms in g (i) above. **(1mk)**

**h) (i)** State three human activities that would affect the ecosystem **(3mks)**

**ii)** Explain two reasons on how the stated activities would affect the ecosystem **(2mks)**

**7.** Explain how abiotic factors affect plants and animals **(20mks)**

**8.** Explain how the human skin is adapted to its functions **(20mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 04

**1.** A student observed feeding relationship while on a tour in a coastal Island.

***Eagles feed on small fish, Small fish feed on sea grass, Insect larvae and molluscs feed on sea grass, Insect larvae fed on by small fish, while crabs feed on insect larvae and molluscs***.

**a)** From the above information, construct a food web. **(3mks)**

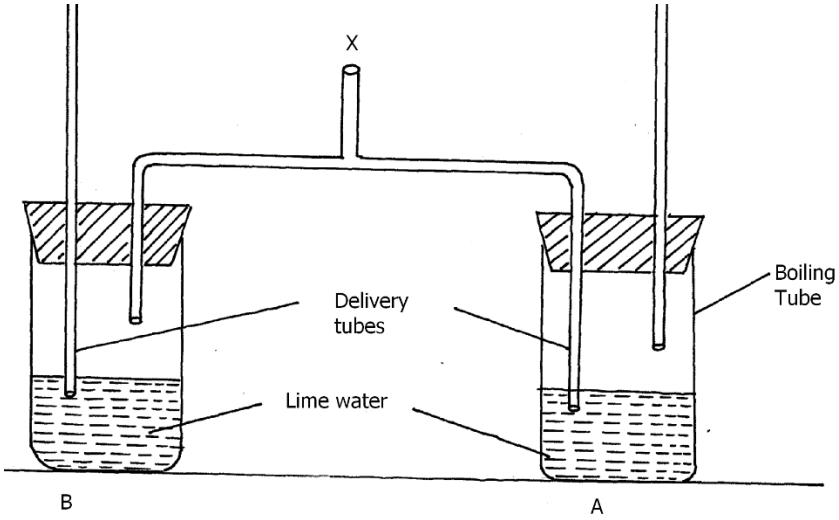
**b)** In which trophic level is small fish found. **(1mk)**

**c)** Extract a food chain where the Eagle is a tertiary consumer. **(1mk)**

**d)** Suppose all the crabs were poisoned, what would be the immediate effect in the ecosystem. Give a reason. **(1mk)**

**(e)** Give a reason why pyramid of biomass is a better representation of energy flow in an eco system than pyramid of numbers. **(1mk)**

**2.** An experiment was set up as shown below.




**a)** A student blew air in and out through point X. Using arrows indicate on the diagram how air gets in and out of the set up. **(2mks)**

**b)(i)** In which of the test tube would lime water turn milky first. **(1mk)**

**(ii)** Give a reason. **(1mk)**

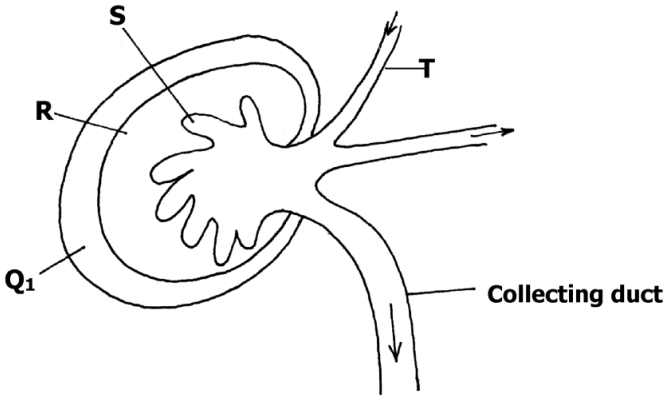
**(c)** What is the effect of lactic acid in the thigh muscles of an athlete after a short fast race**. (2mks)**

**(d)** Identify the type of muscle in human being where formation and effect of lactic acid is not felt. **(1mk)**

**(e)** What is the biological significance of boiling milk /ultra heat treated milk. **(1mk)**


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**3.** The diagram below is a longitudinal section of an organ in mammals




**a)** Name the organ **(1mk)**

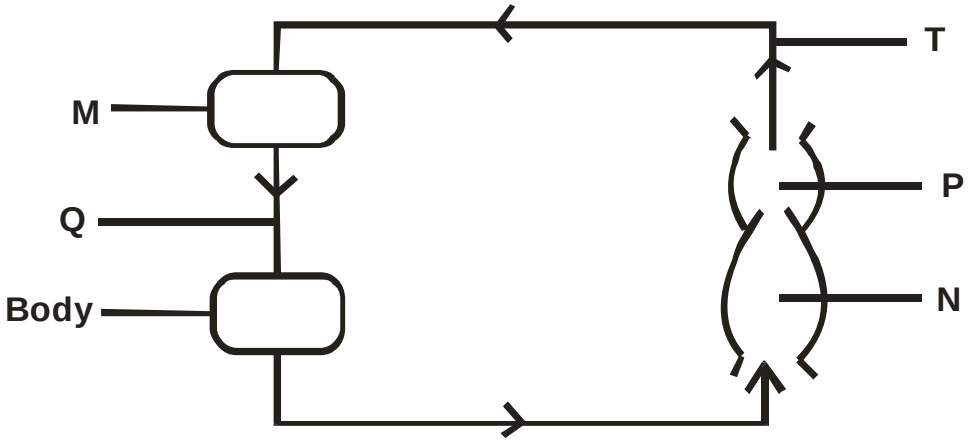
**b)** Identify the parts R and S **(2mks)**

**c) i)** State two differences in the structure above found in the deserted- rat and fish **(3mks)**

**ii)** Account for the difference stated above. **(2mks)**

**d)** Name the gland associated with the secretion of aldorsterone hormone. **(1mk)**

**4.** The diagram below represents a circulatory system found in a certain class of chordates.




**a)** Identify the type of circulatory system shown above. **(1mk)**

**b)** Name **one** class of animals having this type of circulatory system. **(1mk)**

**c)** Identify parts labelled M, N and P. **(3mks)**

**d)** What disadvantages is faced by having the types of circulatory system shown above? **(2mks)**

**e)** Between blood vessels Q and T, which one carries oxygenated blood? **(1mk)**

**5.** In an experiment to investigate the rate of reaction indicated by the equation.

$$\underset{\text{Sucrose}}{C_{12}H_{22}O_{11}} \longrightarrow \underset{\text{Fructose}}{C_6H_{12}O_6} + \underset{\text{Glucose}}{C_6H_{12}O_6}$$


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

It was found out that for products fructose and glucose to form, substance "K" was needed. Temperature was maintained at 37°C.When substance "L" was added, reaction slowed and then stopped.

**a)** Suggest identity of the substances **K** & **L** **(2mks)**

**b)** Other than temperature, state <u>three</u> factures that increase the rate of reaction**.** **(3mks)**

**c)** Explain how substance "L" slowed the rate of reaction. **(2mks)**

**d)** What type of reaction is represented by the equation above? **(1mk)**

## SECTION B (40 MARKS)

**6.** The glucose level in mg per $100cm^3$ of blood was determined in two person Y and Z. Both had stayed for six hours without taking food. They were fed on equal amount of glucose at the start of the experiment .The amount of glucose in their blood was determined at intervals .The results are shown in the table below.

| Times in minutes | Glucose level in blood in mg /$100cm^3$ | |
|---|---|---|
| | Y | Z |
| 0 | 85 | 78 |
| 20 | 105 | 110 |
| 30 | 105 | 110 |
| 45 | 130 | 170 |
| 60 | 100 | 195 |
| 80 | 93 | 190 |
| 100 | 90 | 140 |
| 120 | 90 | 130 |
| 140 | 88 | 120 |

**a)** On the grid provided, plot graphs of glucose levels in blood against time on the same axes. **(7mks)**

**b)** What was the concentration of glucose in the blood of Y and Z at the $50^{th}$ minute? **(2mks)**

**c)** Account for the level of glucose in present Y

i)During the first 45 minutes. **(2mks)**

ii)After $45^{th}$ minute to the end. **(4mks)**

**d)** Account for the decrease in glucose level person Z after 60 minutes. **(2mks)**

**e)** Low blood sugar level in harmful to the body .Explain. **(3mks)**

**7.** Discuss the adaptations of seeds and fruits to dispersal. **(20mks)**

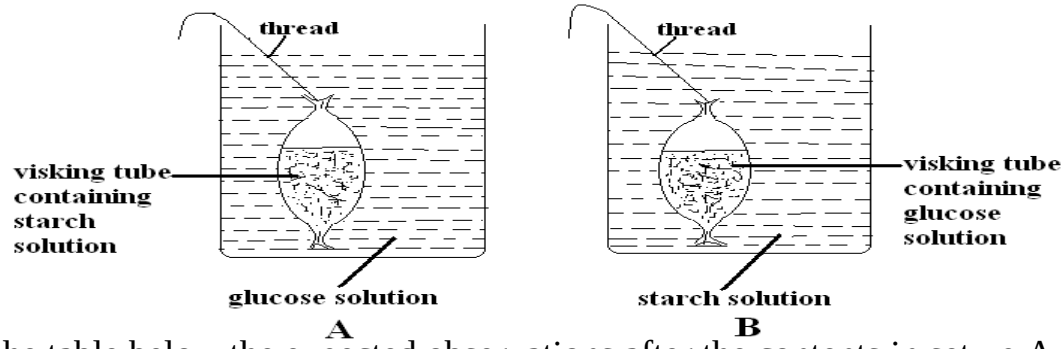
**8** Describe the structure and functions of various organelles in a mature animal cell. **(20mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 05

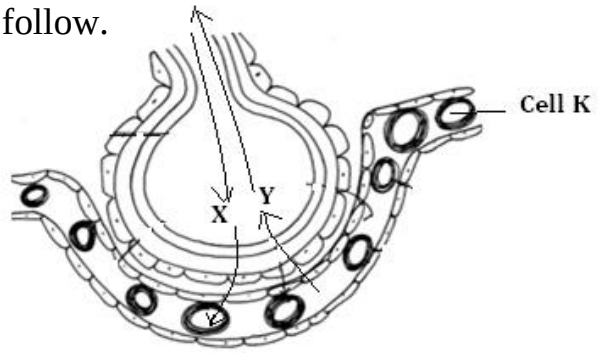
**1.** The following experiment was set up by a form one class. After an hour, the contents of the visking tubing and the beaker were tested using iodine solution and benedict's solution.




Record in the table below the expected observations after the contents in set up A and B were tested using iodine solution and benedict's solution. **[8 mks]**

| | Visking tubing | | Beaker | |
|---|---|---|---|---|
| Set up | Iodine solution | Benedicts solution | Iodine solution | Benedict's solution |
| **A** | | | | |
| **B** | | | | |

**2.** The diagram below shows the association between the alveolus and a blood capillary. Study it and answer the questions that follow.





Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes

**a)** State the physiological process by which the gas labeled X enters the cell labeled K. **(1mk)**

**b)** Identify gases represented by letter X and Y **(2mks)**

**c)** Give **two** adaptations of cell K to its functions. **(2mks)**

**d)** State **three** characteristics of respiratory surfaces. **(3mks)**

**3. a)** Define the following terms as used in animal nutrition

**i)** Dentition **(1mk)**

**ii)** Homodont and heterodont teeth **(2mks)**

**b)** State **two** functions of ileum **(2mks)**

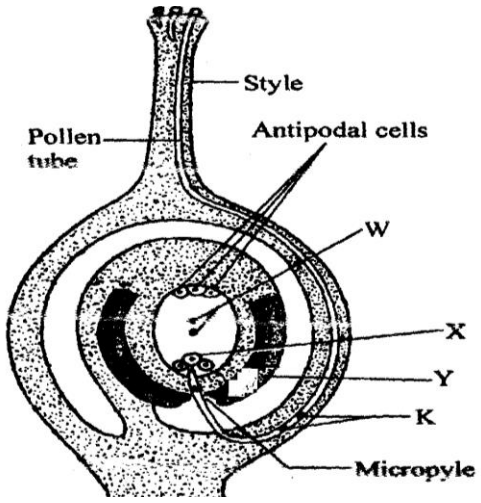
**(c)** Explain the importance of the following in the process of photosynthesis; **(2mks)**

**(i)** Chlorophyll

(**ii)** Light

**(d)** State **one** use of Potassium in ($K^+$) ion the body **(1mk)**

4. The diagram below shows a cross section through the female part of a flower.




**a)** Name the structures labelled W,X, and Y. **(3mks)**

**b)** State two functions of the pollen tube. **(2mks)**

**c)** What happens to antipodal cells after fertilization. **(1mk)**

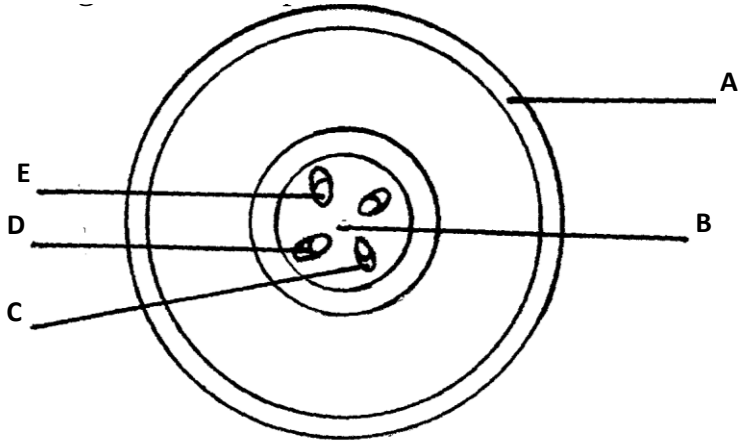
**d)** Name the structure labelled K and state their role. **(2mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

.

**5.** The figure below represents a transverse section of a young stem.




**a)** Name the parts labelled A and B on the diagram. **(2mks)**

**b)** State the functions of the parts labelled C, D and E. **(3mks)**

**c)** List **three** differences between the section shown above and one that would be obtained from the root of the same plant. **(3mks)**

## SECTION B( 40 MARKS)

**6.** The glucose level in mg per $100cm^3$ of blood was determined in two person Y and Z. Both had stayed for six hours without taking food. They were fed on equal amount of glucose at the start of the experiment .The amount of glucose in their blood was determined at intervals .The results are shown in the table below.

| Times in minutes | Glucose level in blood in mg /$100cm^3$ | Glucose level in blood in mg /$100cm^3$ |
|---|---|---|
| | Y | Z |
| 0 | 85 | 78 |
| 20 | 105 | 110 |
| 30 | 105 | 110 |
| 45 | 130 | 170 |
| 60 | 100 | 195 |
| 80 | 93 | 190 |
| 100 | 90 | 140 |
| 120 | 90 | 130 |
| 140 | 88 | 120 |

**a)** On the grid provided, plot graphs of glucose levels in blood against time on the same axes. **(7mks)**


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**b)** What was the concentration of glucose in the blood of Y and Z at the $50^{th}$ minute? **(2mks)**

**c)** Account for the level of glucose in person Y

i) During the first 45 minutes. **(2mks)**

ii) After $45^{th}$ minute to the end of the experiment. **(4mks)**

**d)** Account for the decrease in glucose level person Z after 60 minutes. (2mks)

**e)** Low blood sugar level in harmful to the body .Explain. **(3mks)**

**7.a)** State the various causes of seed dormancy . **(8mks)**

**b)** Describe various factors that affect the process of seed germination. **(12mks)**

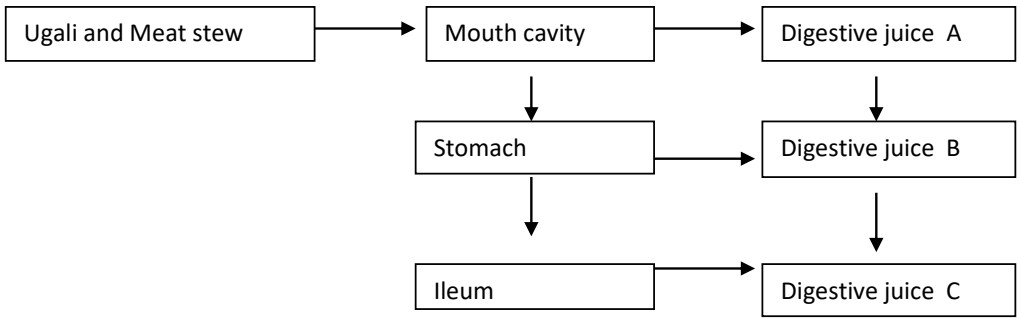
**8.** Discuss the adaptations of the mammalian skin to its functions. **(20mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 06

**1.** The flow diagram below represents passage of a meal through the human digestive system. Study the diagram and answer the questions that follow.




**(a)** Name the physical process that will occur in mouth cavity **(1mk)**

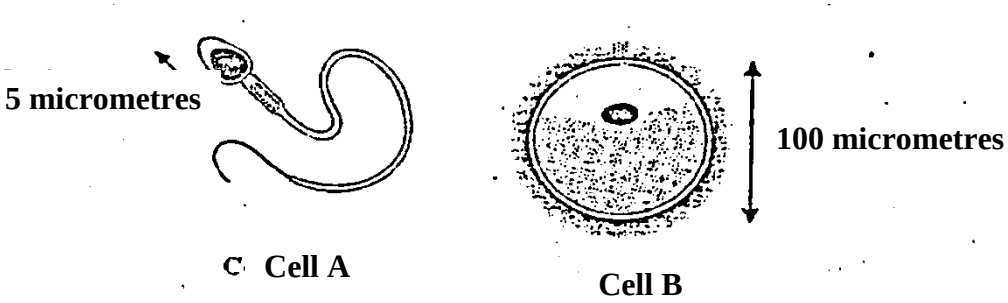
**(b)** Name the digestive juices **B** and **C** **(2mks)**

**(c)** Explain **two** ways in which the digestive system is protected from corrosive effects of digestive juices. **(2mks)**

**(d)** Name the hormone that stimulate secretion of juice **B**. **(1mk)**

**(e)** Identify **two** contents of digestive juice **A** **(2mks)**

**2. a)** The following diagrams represent human sex cells.

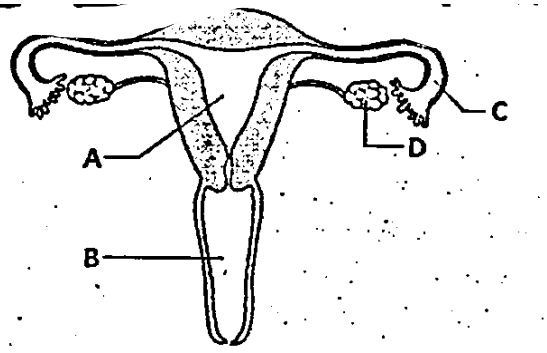



**Cell A** **Cell B**

**i)** Name the cell B **(1mk)**

**ii)** Give **one** feature of cell A which makes it different from cell B. **(1mk)**

**b)** The diagram below represents the female reproductive system






*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**i)** Name the part marked A..... **(1mk)**

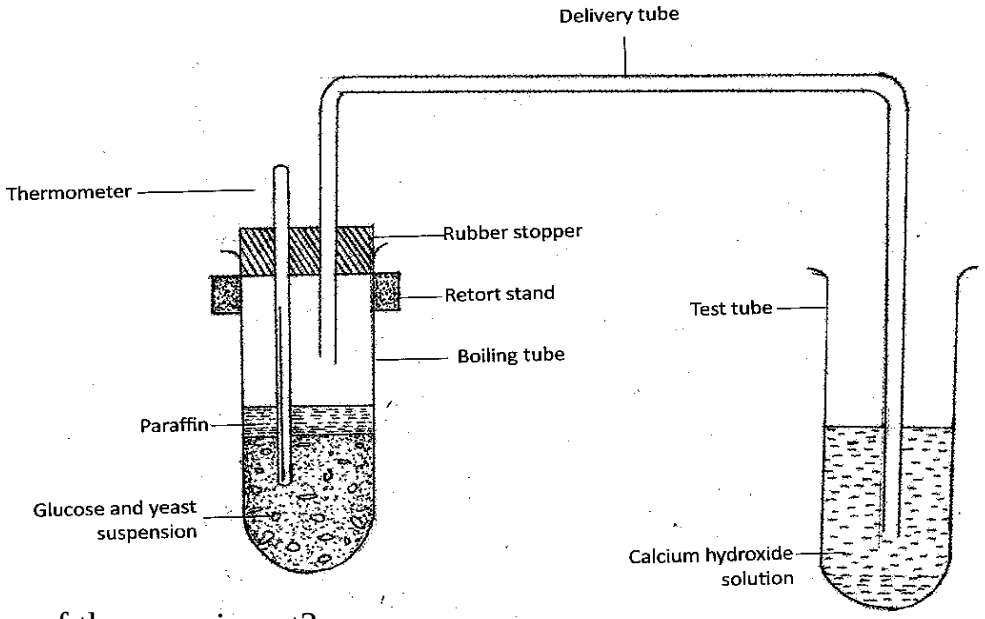
**ii)** State the role of the part marked D. .. **(1mk)**

**c)** State **two** functions of amniotic fluid. **(2mks)**

**d) i)** Name the organism that causes syphilis..... **(1mk)**

**ii)** State **one** symptom of primary syphilis **(1mk)**

3. The set up below illustrates an experiment to demonstrate a certain biological process, before the addition of the yeast suspension the glucose solution was first boiled and then cooled at 40$^{o}$C.




**a)** What was the aim of the experiment? **(1mk)**

**b)** What observations would you make in the tubes a few minutes after the experiment begun **(2mks)**

**c)** Explain the observations made in (b) above **(2mks)**

**d)** Why was glucose solution boiled before cooling at 40$^{o}$C **(1mk)**

**e)** How can you set up a control experiment for the above **(1mk)**

**4.a)** What is meant by the term linked genes? **(1mk)**

**b)** Haemophilia is a genetic condition transmitted through a recessive gene linked to **X** chromosome. The normal gene may be represented by $\mathbf{X^H}$.

**i)** What is the genotype of a haemophilic female?. **(1mk)**

**ii)** A woman who is a carrier for the haemophilia gene marries a normal man. Work out the phenotypic ratio for their offspring. **(4mks)**

**iii)** Haemophilia is more common in males than in females. Explain this phenomenon. **(2mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**5. a)** What is meant by the following terms. Give an example in each case.

**i.** Homologous structures **(1mk)**

Example

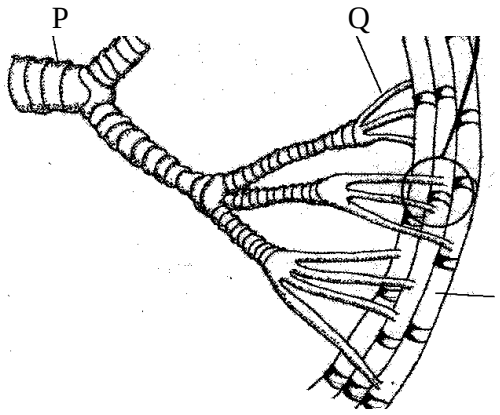
**ii.** Analogous structures **(1mk)**

Example

**iii.** Vestigial structures **(1mk)**

Example

**b)** The diagram below represents part of a gaseous system in a grasshopper.




**a)** Name the structures labeled P and Q **(2mks)**

**b)** State the function of the structure labeled P **(1mk)**

**c)** Describe the path taken by carbon (IV) oxide from the tissues of the insect the atmosphere **(3mks)**

**d)** How is the structure labeled Q adapted to its functions **(2mks)**

## SECTION B

**6.** During germination and growth of a cereal, the dry weight of endosperm, the embryo and the total dry weight were determined at two day intervals. The results are shown in the table below:

| Time after planting (days) | Dry weight of endosperm (mg) | Dry weight of embryo (mg) | Total dry weight (mg) |
|---|---|---|---|
| 0 | 43 | 2 | 45 |
| 2 | 40 | 2 | 42 |
| 4 | 33 | 7 | 40 |
| 6 | 20 | 17 | 37 |
| 8 | 10 | 25 | 35 |
| 10 | 6 | 33 | 39 |

**a)** Using the same axes, draw graphs of dry weight of endosperm, embryo and the total dry weight against time. **(7mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**b)** What was the total dry weight on day 5 **(1mk)**

**c)** Account for

**i.** Decrease in dry weight of endosperm from 0 to 10 **(2mks)**

**ii.** Increase in dry weight of embryo from day 0 to day 10 **(2mks)**

**iii.** Decrease in total dry weight from day 0 to day 8 **(1mk)**

**iv.** Increase in total dry weight after day 8 **(1mk)**

**d)** State **two** factors within the seed and two outside the seed that cause dormancy

**i.** Within the seed. **(2mks)**

**ii.** Outside the seed **(2mks)**

**e)** Give **two** characteristics of meristematic cells **(2mks)**

**7.(a)** Define:

**(i)** Transpiration **(2mks)**

**(ii)** Translocation **(2mks)**

**b)** Identify and explain **five** structural factors that affects the rate of transpiration in plants. **(16mks)**

**8.** Discuss evidences that support organic evolution. **(20mks)**

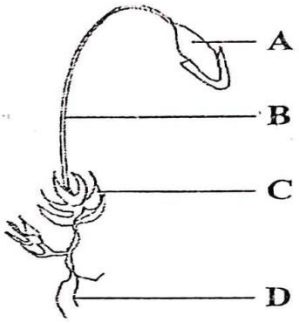


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 07

## SECTION A (40 Marks)

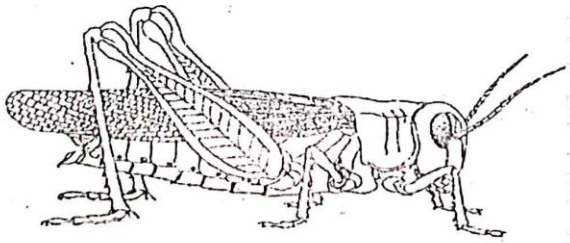
**1.(a)**The diagram below represents a plant in the division Bryophyta.




**(i)** Name the parts labeled **B** and **D**. **(2mks)**

**(ii)** State one function for each of the parts labeled **A** and **C.** **(2mks)**

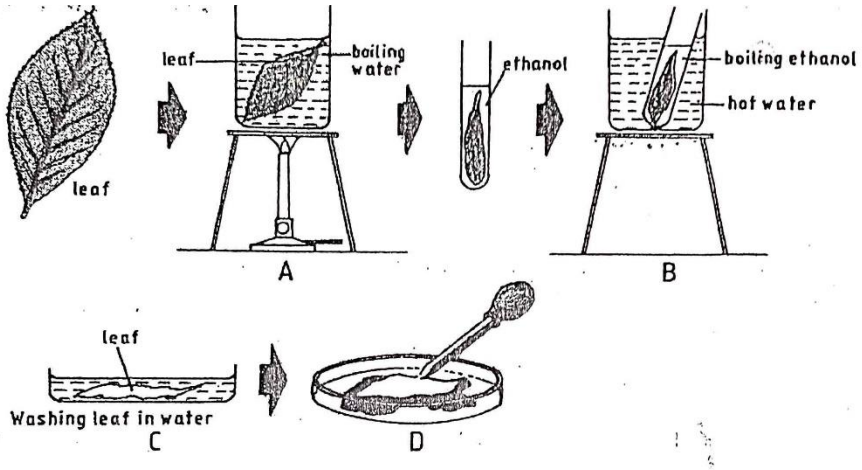
**(b)**The diagram below represents a member of the kingdom Animalia.



**(i)**Name the phylum to which the organism belongs. **(1mk)**

**(ii)**Using observable features in the diagram, give **three** reasons for the answer in b(i). **(3mks)**

**2.** The set up below illustrates a procedure that was carried out in the laboratory with a leaf plucked from a green plant that had been growing in sunlight.





*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

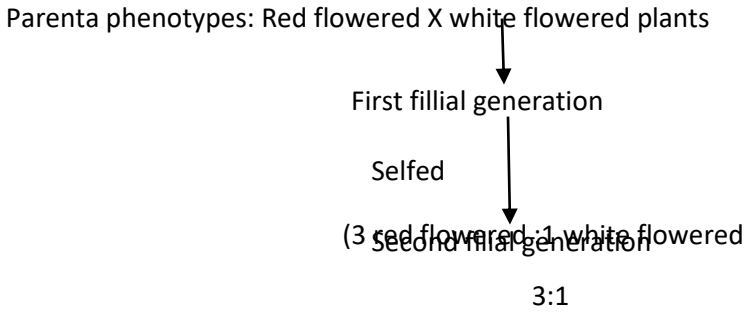
**(i)** What was the purpose of the above procedure. **(1mk)**

**(ii)** Give reasons for carrying out steps A,B and C in this procedure. **(3mks)**

**(iii)** Name the reagent that was used at the step labeled D. **(1mk)**

**(iv)** State the expected result on the leaf after adding the reagent named in (iii0 above. **(1mk)**

3.The chart below represents the result of successive crosses, starting with red flowered plants and white flowered plants and in which both plants are pure breeding.



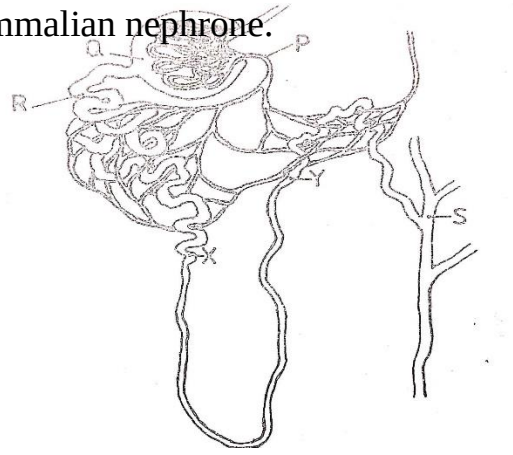

**(a)**What were parental genotypes? Use letter R to represent the gene for red colour and r for white colour. **(2mks)**

**(b)(i)**What was the colour of the flowers in the first filial generation? **(1mk)**

**(ii)** Give a reason for your answer in (b)(i) above. **(2mks)**

**(c)** 480 red flowered plants were obtained in the second filial generation, how many $F_2$ plants were white coloured plants? Show your working. **(3mks)**

**4.** The diagram below represents a mammalian nephrone.




**(a)**Name the:

**(i)**Structure labeled P. **(1mk)**

**(ii)**Portion of the nephrone between point X and Y. **(1mk)**

**(b)**Name the process that takes place at point Q. **(1mk)**

**(c)**Name one substance present at point R but absent at point S in a healthy human. **(1mk)**

**(d)**The appearance of the substance you have named in (c above is a symptom of a certain disease caused by a hormone deficiency.



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

Name the :

**(i)** Disease **(1mk)**

**(ii)** Hormone **(1mk)**

**(e)** State the structure modifications of nephrones found in desert mammals. **(2mks)**

**(f)** State two advantages terrestrial animals have in excreting urea as their main nitrogenous waste product. **(2mks)**

**5.** In an experiment on respiration ,a mouse was observed to have inhaled 200$cm^3$ of oxygen and exhaled 199.75$cm^3$ of carbon (IV)Oxide in ten minutes.

**(a)** Calculate the respiratory quotient for the activity in the experiment. **(2mks)**

**(b)** Identify the possible food substance consumed by the mouse**.** **(1mk)**

**(c)** State the fate of the excess food named in (b)above in the human body. **(2mks)**

**(d)** Name the three end products of anaerobic respiration in plants. **(3mks)**

## SECTION (40 Marks)

**6.** A scientist carried out an investigation to find out the population growth of mice under laboratory conditions. Twenty young mice were placed in a cage. The results obtained from the investigation were as shown in the table below.

| Time in months | 0 | 2 | 4 | 6 | 7 | 10 | 12 | 16 | 18 |
|---|---|---|---|---|---|---|---|---|---|
| Number of mice | 20 | 20 | 65 | 115 | 310 | 455 | 450 | 145 | 160 |

**(a)**On the grid provided, draw a graph of the number of mice against time. **(6mks)**

**(b)**Account for the changes in mice population between.

**(i)** 0 to 2 months. **(2mks)**

**(ii)** 2 to 6 months **(2mks)**

**(iii)** 6 to 10 months **(2mks)**

**(iv)**10 to 12 months **(2 mks)**

**(c)(i)**Between which two months was the population change greatest? (1mk)

**(ii)**Calculate the rate of population change over the period in (c) (i) above. (2mks)

**(d)**What change in population was continued to the 19$^{th}$ month?

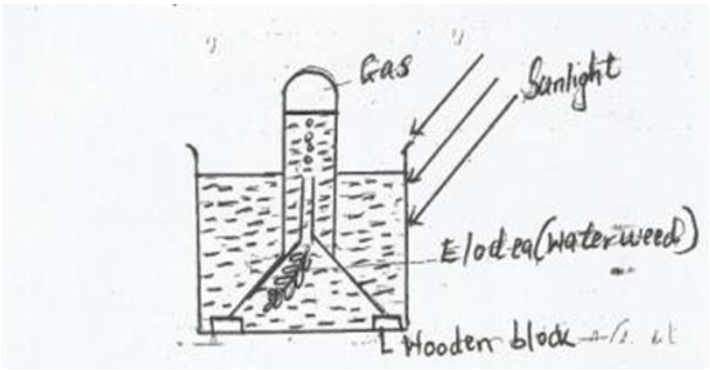
**(e)**To obtain the observed results state two variables that were kept constant during the investigation.



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 08

**1.** The figure below represents a set up that was used to investigate a certain process in a plant.




**a.)** State the aim of the experiment. **(1mk)**

**b.)** Why was sodium hydrogen carbonate added to water in this experiment? **(1mk)**

**c.)** Explain why the number of bubbles reduced by evening. **(2mks)**

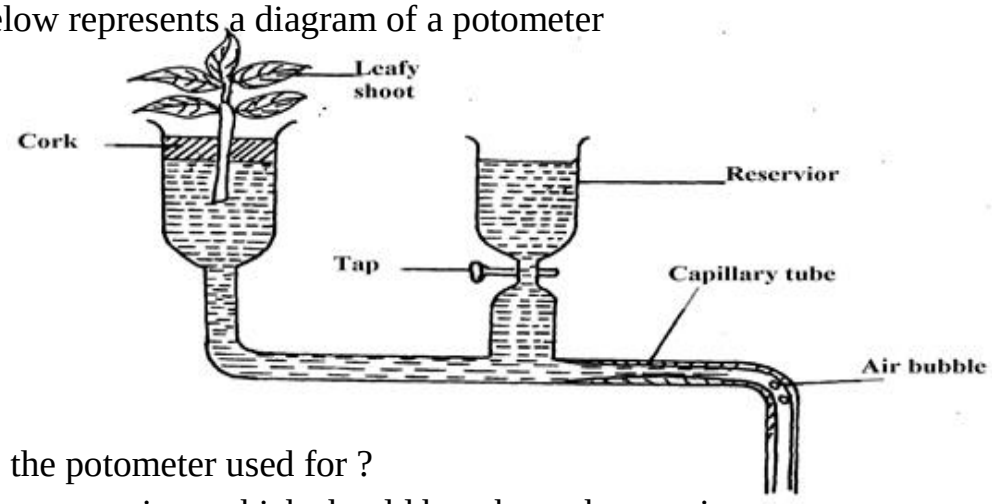
**d.)** Explain the use of the following in this experiment

**i.)** Water plant **(2mks)**

**ii.)** Wooden block **(1mk)**

**c.)** Write a word equation to represent the chemical process being investigated. **(1mk)**

**2.** The figure below represents a diagram of a potometer




**(a)** What is the potometer used for ? **(1mk)**

**(b)** State the precautions which should be taken when setting up a potometer **(3mks)**

**(c)** Explain what you will expect if set up was placed under the following environmental conditions;

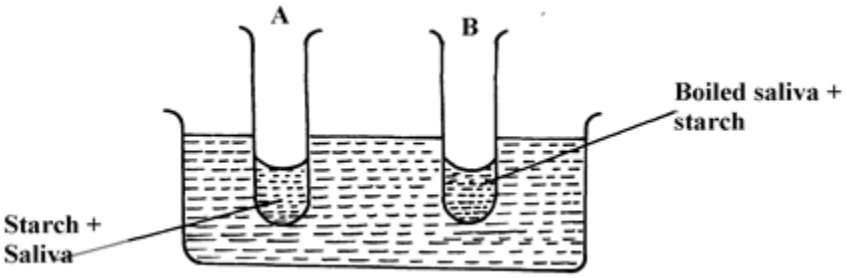
**(i)** Dark room **(2mks)**

**(ii)** Leafy shoot enclosed in polythene bag **(1mk)**

**(iii)** In a current of air created by a fan **(1mk)**


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**3.** In an experiment to investigate on aspect of digestion, two test tubes A and B were set-up as shown in the diagram below;




The test tubes were left in the bath for 30minutes. The content of each test tube was then tested for starch using iodine solution:-

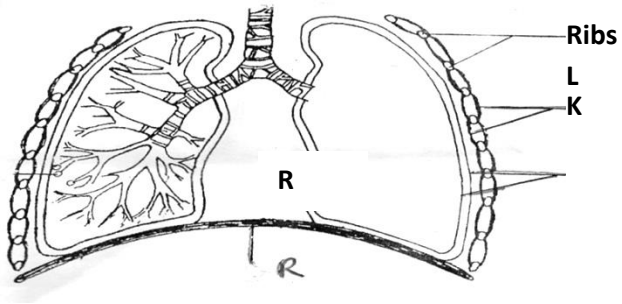
**(a)** What was the aim of the experiment? **(1mk)**

**(b)** What results were expected in test-tube A and B **(2mks)**

**(c)** Account of the results you have given in (b) above in test tube A and B **(4mks)**

**(d)** Describe the procedure of testing for starch **(1mk)**

**4.** The diagram below represents a part of thoracic region of a human being;



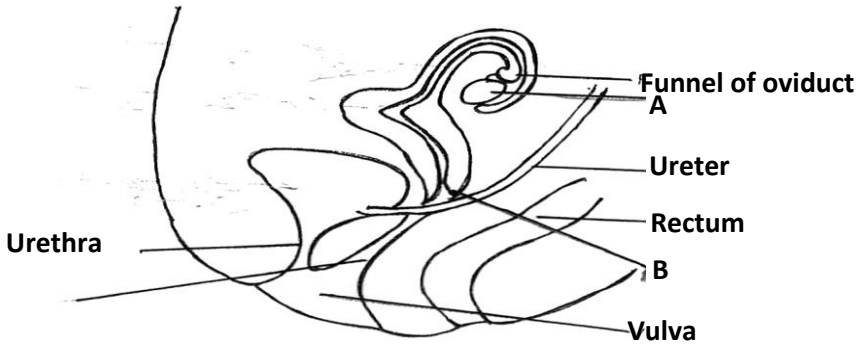

**(a)** Name the structures labeled **K** and **L** **(2mks)**

**(b)** How does structure R bring about inhalation **(4mks)**

**(c)** Give the scientific name of the organism that causes whooping cough **(1mk)**

**(d)** Name the main site of gaseous exchange in human being. **(1mk)**

5. The diagram below shows the vertical section of a female reproductive system






*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**(a)** Name the parts labeled **A** and **B** **(2mks)**

**(b)** Name the gonadotrophic hormone that affects the part labeled **A** **(1mk)**

**(c) (i)** State a hormone(s) produced by each of the following structures in a female: **(2mks)**

Ovary…

Placenta …

**(ii)** State **one** effect of each of the above hormones on uterine wall **(2mks)**

**(d)** Name a sub-division in the kingdom plantae that exhibit double fertilization **(1mk)**

## SECTION B (40 MKS)

6. The table below shows the changes observed in the dry weight (in milligrams) of a barley seedling, its embryo and endosperm during the first ten days after the onset of germination.

| | DRY WEIGHT IN MILLIGRAMS | | |
|---|---|---|---|
| **TIME (DAYS** | **EMBRYO** | **ENDOSPERM** | **WHOLE SEEDLI** |
| 0 | 2 | 41 | 45 |
| 2 | 2 | 39 | 43 |
| 4 | 7 | 32 | 41 |
| 6 | 15 | 21 | 38 |
| 8 | 22 | 11 | 35 |
| 10 | 35 | 6 | 43 |

**(a)** Using a suitable scales on the same axis, plot graphs of dry weight of embryo endosperm and whole seedling against time. **(8mks)**

**b.)** State and account for the changes in dry weight shown by:

**i.)** Embryo **(4mks)**

**ii.**) Endosperm **(4 mks)**

**c.)**Explain the role of water during germination. **(4 mks)**

**7. (a)** Describe the process of fertilization in a flowering plant. **(15mks)**

**(b)** State the changes that take place in a flower after fertilization. **(5mks)**

**8.(a)** Describe the dentition of carnivorous mammals and their adaptation to the mode of feeding. **(10mks)**

**b)** Activities of humans are contributing to the pollution of water bodies. Describe the causes and methods of controlling water pollution in Kenya. **(10mks)**

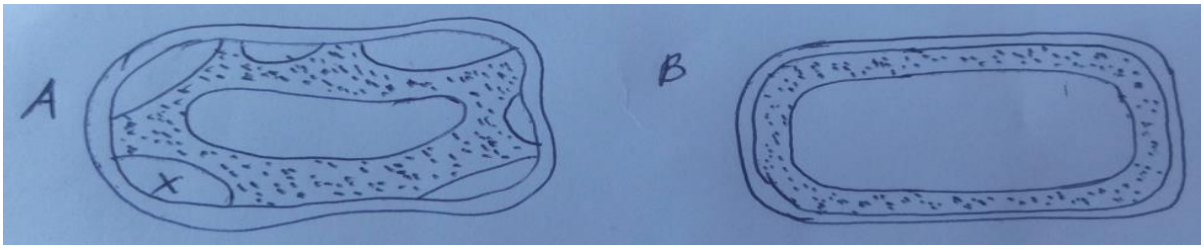


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 09

## SECTION A( 40 MARKS)

**1.** The diagrams below represents two plants cell A and B placed in two different solutions. Study the diagrams and answer questions that follow.




**a)** Identify the nature of solution into which each cell was placed. **(2mks)**

**b)** Name the physiological process responsible for the observed results. **(1mk)**

**c)** Give the correct biological term used to describe cell A. **(1mk)**

**d)** Describe what would happen if a red blood cell was placed in the solution in which cell B was placed. **(2mks)**

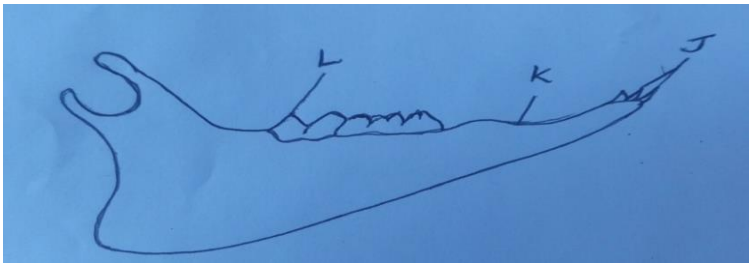
**e)** Explain why freshwater amoeba do not burst when placed in distilled water. **(2mks)**

**f)** Explain the fate of glucose after assimilation. **(2mks)**

**2. (a)** Distinguish between the terms homodont and heterodont. **(2mks)**

**(b)** What is the function of carnassial teeth? **(1mk)**

**(c)** The diagram below represents the lower jaw of a mammal.




**(i)** Name the mode of nutrition of the mammal whose jaw is shown above. **(1mk)**

**(ii)** State one structural and one functional differences between the teeth labeled J and L. **(2mks)**

**(iii)** Name the toothless gap labeled K. **(1mk)**

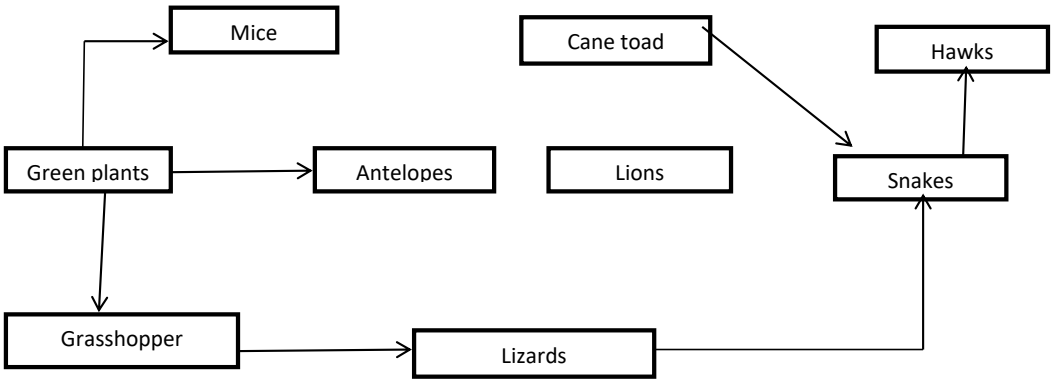
**(iv)** State the function of the gap. **(1mk)**

**(v)** Name the substance that is responsible for hardening of teeth. **(1mk)**

**(vi)** What do you understand by the term 'dental formula'. **(1mk)**


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**3.** The diagram below represents a food web in a terrestrial ecosystem.




**a)** Which organism has the highest number of preys? **(1mk)**

**b)** Construct food chains with snakes as tertiary consumers. **(2mks)**

**c)** State the trophic level occupied by hawks in the food chains constructed in (b) above **(1mk)**

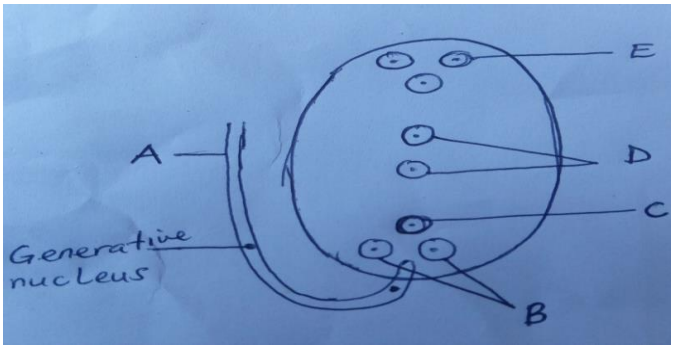
**d)** Describe how capture-recapture method can be used in estimating the population of fishes in a lake. **(4mks)**

**e)** Name the process through which:

**(i)** Producers convert chemical energy into heat energy lost to the environment. **(1mk)**

**(ii)** Living organisms convert chemical energy into heat energy lost to the environments. **(1mk)**

**4.** The figure below shows the embryo sac before fertilization.




**a)** Identify the structures labeled A and B **(2mks)**

**b)** Identify the structures labeled in the diagram that will develop into the following after fertilization.

**(i)** Embryo **(1mks)**

**(ii)** Endosperm **(1mk)**

**c)** State the ploidy of each of the following nuclei after fertilization

**i)** C **(1mk)**

**ii)** D **(1mk)**

**d)** Briefly outline the process of 'double fertilization' in flowering plants. **(2mks)**

**e)** Name two substances which are found in the intercellular air spaces in a green leaf during a hot sunny day. **(2mks)**


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**5.** In an investigation, snapdragon plants with broad leaves (B) were crossed with narrow leaves (N). The F1 progeny had intermediate leaf breadth.

**(i)** Give a reason for intermediate leaf breadth in F1 generation **(1mk)**

**(ii)** If the plants in the F1 Generation were selfed, state the genotypic and phonotypic ratio of the F2 generation. (show your working) **(5mks)**

**(iii)** Hemophilia is more common in males than females. Explain this phenomenon. **(2mks)**

**(iv)** Explain why an under dose insecticide spraying of mosquitoes may cause a serious problem on this mode of killing mosquitoes using the same spray in future. **(2mks)**

## SECTION B(40 MARKS)

**6.** Two sets of a pea seeds were germinated, set A was placed in normal day light conditions in the laboratory which set B was placed in a dark cupboard. Starting a few days later the shoots lengths were measured twice daily and their mean length recorded as shown in the table below.

| Time in hours | 0 | 12 | 24 | 36 | 48 | 60 | 72 | 84 |
|---|---|---|---|---|---|---|---|---|
| Set A (length (mm) | 12 | 14 | 20 | 23 | 28 | 31 | 47 | 54 |
| Set B length (mm) | 17 | 23 | 28 | 35 | 48 | 62 | 80 | 94 |

**(a)** Using suitable scale draw the graphs of the mean lengths in set A and B against time **(7mks)**

**(b)** From the graph, state the man shoot length of each set of seedling at the $66^{th}$ hour. **(2mks)**

**(c)** Account for the difference of curve B and A. **(3mks)**

**(d)** Explain what would happen to set up B if it were allowed to continue to grow under conditions of darkness. **(4mks)**

**(e)** State 3 external conditions which should be constant for both set ups. **(3mks)**

**(f)** Why is oxygen important in the process of active transport? **(1mk)**

**7. (a)** state five difference between aerobic and anaerobic respiration. **(5mks)**

**(b)** Discuss the application of anaerobic respiration in industry and at home. **(15mks)**

**8(a)** state two functions of the mammalian skin. **(2mks)**

**(b)** Describe the structure and function of the mammalian skin. **(8mks)**

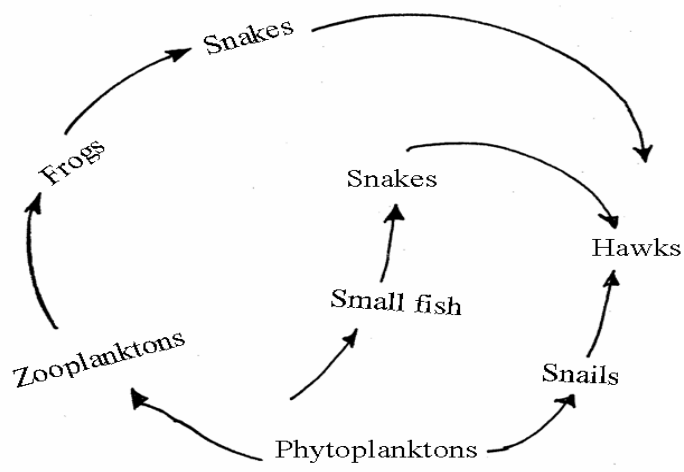


*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# FORM THREE HOLIDAYS SMART PASS
# BIOLOGY PP2 QUESTION PAPER NO: 10

## SECTION A

**1.** The diagram below represents a feeding relationship in an ecosystem.




**(a)** Name the type of ecosystem represented by the above food web. **(1mk)**

**(b)** Name the organisms in the food web that

**(i)** Are producers **(1mk)**

**(ii)** Occupies the highest trophic level **(1mk)**

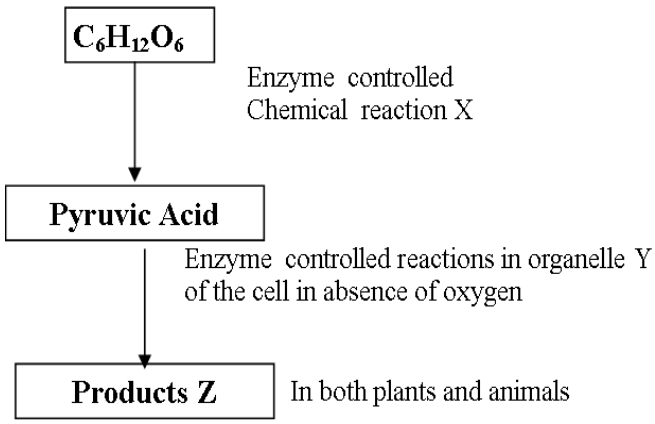
**c)(i)** Write a food chain that ends with the hawk as quaternary consumer. **(1mk)**

**ii)** State **two** short term effects on the above ecosystem if all the small fish were killed **(2mks)**

**d)** How does oil spills lead to death of fish. **(1mk)**

**e)** Name **one** other cause of water pollution apart from oil spills**.** **(1mk)**

**2.** Study the flow chart below of a process that takes place in both plants and animals.





*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**a)** Name the above process. **(1mk)**

**b)(i)** In the above process name the chemical reaction represented by X. **(1mk)**

**(ii)** Name the part of the cell where the enzyme controlled reactions in b (i) above takes place. **(1mk)**

**(c)** Name the products Z in

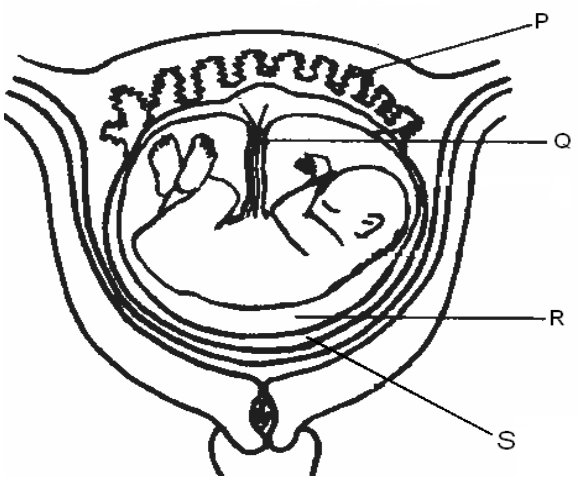
i) Plants **(1mk)**

ii) Animals **(1mk)**

**(d)** What would be the fate of pyruvic acid if oxygen supply is availed in the mitochondria of an animal cell **(2mks)**

**e)** What is meant by the term oxygen debt? **(1mk)**

**3.** The diagram below represents human foetus in a uterus.




**(a)** Name the part labeled S**.** **(1 mk)**

**(b) (i)** Name the types of blood vessels found in the structure labeled Q. **(2mks)**

**(ii)** State the differences in composition of blood in the vessels named in (b)(i) above **(2mks)**

**(c)** Name two features that enable the structure labeled P carry out its function. **(2mks)**

**(d)** State the role of the part labeled R. **(1mk)**

**4.** The table below shows the concentration of sodium and iodine ions in pond water and in the cell sap of water lettuce plant.

| | Sodium ion concentration | Iodine ion concentration |
|---|---|---|
| Pond water | 180 | 0.4 |
| Cell sap | 90 | 500 |

**a.** Giving reasons, name the process through which each of the ions is taken up by the plant.

**(i)** Sodium ion. **(2mks)**

**(ii)** Iodine ion. **(2 mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**(b)** The lettuce plant was then treated with a chemical substance that inhibits the synthesis of ATP. Giving reasons, state which ion uptake was affected by the treatment. **(2 mks)**

**(c)** Explain why fresh water fish cannot survive in marine habitat. (2 mks)

**5.** The equation bellows shows a chemical reaction that takes place in green plants under certain conditions

Carbon (IV) Oxide + Water → Glucose + X

**(a)** Name the; **(2mks)**

**(i)** Substance represent by X

**(ii)** Process represented by the equation

**(b)** Other than the reactants, state two conditions necessary for this reaction to occur. **(2mks)**

**c)** Name three types of cells in which the process occurs **(3mks)**

**d)** State one factor that affect the process named in a)(ii) above **(1mark)**

## SECTION B

6. A group of students carried out a study of the population growth of flour weevils. They put16grams and 64 grams of maize flour into two equal boxes K and L respectively. They then introduced equal numbers of weevils into the boxes. The boxes were kept under similar environmental conditions. The weevils were counted at intervals and the results recorded in the table below.

| No. of days after introduction of weevils | Approximate No. of weevils present | |
|---|---|---|
| | K | L |
| 0 | 20 | 20 |
| 5 | 20 | 20 |
| 40 | 200 | 300 |
| 60 | 550 | 800 |
| 80 | 560 | 1300 |
| 100 | 650 | 1750 |
| 120 | 640 | 1750 |
| 135 | 650 | 1740 |
| 150 | 645 | 1748 |

**(a)** Using a suitable scale, draw two graphs on the same axes from the results in the table. Plot approximate number of weevils present on the Y – axis. **(8mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

**(b)** What were the approximate numbers of weevils present in the two boxes on the $70^{th}$ day. **(2mks)**

Number in K……

Number in L……

**(c) (i)** On the what day was the population of weevils in K 580. **(1mk)**

**(ii)** Between which days was the population difference greatest. **(1mk)**

**(d)** Account for the shape of graph L between day 5 and day 100. **(4mks)**

**(e)** State factors that would make the human species assume the graph curve between day 100 and day 150. **(4mks)**

**7.** Describe how the human male reproductive system is adapted to perform its function. **(20mks)**

**8. a)** Define transpiration **(1mk)**

**b)** Give THREE types transpiration **(3mk)**

**c)** Describe EIGHT factors that affect the rate of transpiration **(16mks)**



*Prefer Calling Amobi Group of Examiners @ 0743 333 000 or 0706 851 439 for Marking Schemes*

# CALL AMOBI GROUP OF EXAMINERS @ 0743 333 000 OR 0706 851 439 TO ACQUIRE :













