WAEC

BIOLOGY Theory

Past questions

[SSCE / GCE]

Years:

2010	*2011*	*2012*
2013	*2014*	*2015*

~~**NOT FOR SALE**~~

WAEC past questions **(PDF)** are provided **FREE of charge** for Toppers. To download more free exam materials, click on the link below to visit Toppers Website.

www.toppers.com.ng

2010 WAEC BIOLOGY THEORY QUESTIONS

PART I *– Answer two questions only from this part.*

1. **(a)** Write the chemical equation for **each** of the following processes: (i) aerobic respiration

(ii) anaerobic respiration in plants

(iii) anaerobic respiration in animals *[6 marks]*

(b) State **four** functions which the liver of a patient suffering from cancer of the liver will not be able to perform. *[4 marks]*

(c) Make a diagram 8-10 cm long of a flame cell and label fully. *[6 marks]*

(d) Name **one** appropriate hormone **each** responsible for the following conditions in plants:

(i) ripening of fruits

(ii) breaking dormancy in seeds

(iii) weed control

(iv) leaf fall *[4 marks]*

2. **(a)** (i) Name **two** types of germination of seeds giving **one** example of **each** type. *[4 marks]*

(ii) Describe a simple experiment to demonstrate that oxygen, water and warmth are necessary for germination of seeds. *[10 marks]*

(b) State **two** distinguishing features each of:

(i) epiphytes

(ii) parasites *[4 marks]*

(c) Give **two** examples of parasitic plants. *[2 marks]*

3. **(a)** Write short notes on each of the following:

(i) ecological niche

(ii) population density

(iii) climax continually *[12 marks]*

(b) Describe briefly the interaction between abiotic and biotic components of an ecosystem. *[8 marks]*

4. **(a)** List **four** characteristics which can be genetically transmitted in humans. *[4 marks]*

(b) (i) Name **two** sites each in plants and animals where meiosis occur. *[4 marks]*

(ii) State **two** differences between meiosis and mitosis. *[2 marks]*

www.toppers.com.ng

(c) A woman with blood group 'A' (heterozygous) claimed that her son who has blood group 'O' was fathered by Mr. James who has blood group 'A' (homozygous). With the aid of suitable genetic diagrams:

(i) prove or disprove the woman's claim

(ii) give reasons to support your answer. *[10 marks]*

PART III *– Answer* ***one*** *question* ***only*** *from this part.*

7. **(a)** (i) What is placentation? *[2 marks]*

(ii) Name **two** organs associated with the human placenta. *[2 marks]*

(b) State **five** functions of the human placenta. *[5 marks]*

(c) Write short notes on the following:

(i) viviparity

(ii) territoriality

(iii) seasonal migration *[11 marks]*

8. **(a)** Explain the term Adaptation in relation to the mode of life of an organism. *[2 marks]*

(b) Explain how each of the following structures adapt the organism that possess them to their modes of life:

(i) succulent leaves in Aloe sp.

(ii) succulent stems and reduced leaves in cactus plants.

(iii) short, strong beaks in fowls.

(iv) counter shading in fish

(v) tiny scale leaves on needle-like branches of pine trees. *[10 marks]*

(c) (i) What is population? *[3 marks]*

(ii) State **five** effects of overpopulation on a community. *[5 marks]*

www.toppers.com.ng

2011 WAEC BIOLOGY THEORY QUESTIONS

PART I *– Answer* ***two*** *questions* ***only*** *from this part.*

1. **(a)** (i) What is the effect of gravity on plant growth?

(ii) Describe an experiment to demonstrate the effect of gravity on the roots of plants.

(b) Explain how bitter taste is detected in humans.

(c) Copy and complete the table below on endocrine glands and their functions.

S/N	Endocrine Glands	Hormone Produced	Function
1.	Thyroid		
2.		Insulin	
3.			Development of secondary sexual characters of females

2. **(a)** Make a diagram 8 – 10cm long and fully label to show the relative position of the following organs in the mammalian gut:

(i) stomach

(ii) pancreas

(iii) liver

(iv) gall bladder

(v) duodenum

(b) (i) List **two** diseases of the liver.

(ii) State **five** effects of the diseases in 2(b)(i) on the human body.

(c) State the deficiency symptoms of the following vitamins:

(i) vitamin A

(ii) vitamin C

(iii) vitamin K

3. **(a)** (i) State the second law of thermodynamics.

(ii) Use the second law of thermodynamics to explain the flow of energy across different trophic levels in a food chain.

(b) (i) State **three** factors that can likely limit the size of human populations.

(ii) Outline **two** ways each by which humans can overcome the factors named in **3**(b)(i)

4. **(a)** (i) What is the difference the genotype and phenotype of an individual?

(ii) State **two** factors each which determine each of the terms in **4**(a)(i).

(b) In a breeding experiment, a homozygous black dog (**BB**) was crossed with a homozygous white dog (**bb**) to produce puppies in the first filial generation (**F1**). The second filial generation (**F2**) produced a total of two hundred and forty (**240**) black and white puppies. With the aid of genetic diagram, determine:

(i) the number of white puppies (F1)

(ii) the number of black puppies in the (F2)

PART II *– Answer* ***one*** *question* ***only*** *from this part.*

5. **(a)** Explain the following terms:

(i) putrefaction

(ii) nitrogen fixation

(iii) nitrification

(iv) denitrification

www.toppers.com.ng

(b) State three differences between nitrogen fixation and denitrification.

(c) Explain how nitrogen from urine gets to the roots of plants.

6. **(a)** (i) What is immunity?

(ii) Explain **two** ways by which a person becomes immune to yellow fever.

(iii) Name **four** diseases for which babies are immunized.

(b) What is translocation?

(c) State:

(i) **three** differences between the transport system in flowering plants and mammals.

(ii) **three** similarities of the transport system in flowering plants and mammals.

2012 WAEC BIOLOGY THEORY QUESTIONS

PART I *– Answer* ***two*** *questions* ***only*** *from this part.*

1. **(a)** Explain briefly **four** factors that affects the diffusion of substances. *[8 marks]*

   (b) Explain the following terms:

   (i) active transport

   (ii) transpiration *[4 marks]*

   (c) State **four** ways by which plants can reduce high rate of transpiration. *[4 marks]*

   (d) State the features of red blood cells and how these features adapt the cell to perform its functions. *[4 marks]*

2. **(a)** Describe briefly the role of the stomach in digestion. *[8 marks]*

   (b) (i) Name **three** parts of plant in which food can be stored.

   (ii) Give **one** example in **each** case. *[6 marks]*

   (c) Explain briefly how the level of sugar in the mammalian blood can be regulated. *[6 marks]*

3. **(a)** Explain briefly the following terms:

(i) conservation

(ii) endangered species. *[6 marks]*

(b) State:

(i) **five** reasons why conservation of forests is important. *[5 marks]*

(ii) **four** ways by which forest reserves can be conserved. *[4 marks]*

(c) (i) What is the importance of decomposers in the ecosystem?

(ii) Name **one** plant and **one** animal decomposer. *[5 marks]*

4. **(a)** (i) What is gene? *[2 marks]*

(ii) differentiate between the terms genotype and phenotype. *[2 marks]*

(b) Explain the following terms:

(i) hybrid

(ii) pure breeding

(iii) nucleotide. *[6 marks]*

(c) In garden pea seeds, smooth seed coat is dominant over rough seed coat. With the aid of a genetic diagram,

determine the result expected if a homozygous rough pea is crossed with a smooth seed coat plant whose parents were rough coated. *[10 marks]*

PART II *– Answer* ***one*** *question* ***only*** *from this part.*

5. **(a)** Explain the following terms:

(i) disease

(ii) symptoms of diseases *[4 marks]*

(b) (i) List **two** physical and **two** chemical barriers that prevent pathogens from penetrating the body of an organism. *[4 marks]*

(ii) Explain how vaccination protects the body from contracting infectious diseases. *[5 marks]*

(c) Distinguish between an antibody and an antigen. *[4 marks]*

(d) Name the causative agents of:

(i) malaria

(ii) cholera

(iii) AIDS *[3 marks]*

www.toppers.com.ng

6. **(a)** (i) Describe epigeal germination of a seed. *[6 marks]*

(ii) In a tabular form, state **three** differences between epigeal germination and hypogeal germination. *[3 marks]*

(b) (i) What is seed dormancy? *[2 marks]*

(ii) State **three** ways by which dormancy in seeds can be broken. *[3 marks]*

(c) State **six** advantages of using contraceptives in human populations. *[6 marks]*

www.toppers.com.ng

2013 WAEC BIOLOGY THEORY QUESTIONS

PART I *– Answer* ***two*** *questions* ***only*** *from this part.*

1. **(a)** (i) What is respiration?

(ii) In a tabular form, state **four** differences between gaseous exchange and aerobic respiration.

(b) (i) Explain the term Residual air.

(ii) What is the importance of residual air to mammals?

(c) State **four** characteristic features associated with respiratory structures.

(d) (i) What is oxygen debt?

(ii) Outline **three** activities that can result in oxygen debt.

2. **(a)** What is photosynthesis?

(b) List:

(i) **four** external factors that affect the rate of photosynthesis

(ii) **two** internal factors that affects the rate of photosynthesis

(c) (i) List the major products of the light dependent stage of photosynthesis

(ii) State the importance of **each** of the products listed in **2**(c)(i) above.

(d) (i) Explain why there are no green plants at the lower depths of some lakes.

(ii) State why decomposers are important to flowering plants.

3. **(a)** (i) What is ecological succession?

(ii) Describe the process of ecological succession on a bare plot of land.

(b) Explain the following terms:

(i) biosphere

(ii) population

(iii) community

(iv) ecosystem

(c) Name **one** instrument each used for measuring:

(i) relative humidity

(ii) wind speed

www.toppers.com.ng

4. **(a)** (i) What is conservation?

(ii) State **six** factors responsible for the decline of the abundance and variety of wildlife.

(b) Outline **six** ways in which the government can improve the situation in **4**(a)(ii) above.

(c) (i) What is Eutrophication?

(ii) State **two** causes of eutrophication.

PART III *– Answer* ***one*** *question* ***only*** *from this part.*

7. **(a)** Describe the carbon cycle.

(b) State the functions of:

(i) nitrogen fixing bacteria in nature

(ii) nitrifying bacteria in nature

(iii) denitrifying bacteria in nature

8. **(a)** (i) What is excretion?

(ii) List the excretory organs in humans and name **one** waste product excreted by each organ.

(b) Describe the function of the kidney

(c) Name the excretory organs in:

www.toppers.com.ng

(i) insects

(ii) earthworms

2014 WAEC BIOLOGY THEORY QUESTIONS

SECTION B *– Answer* ***two*** *questions* ***only*** *from this part.*

1. **(a)** (i) List **three** characteristics of living organisms. *[3 marks]*

(ii) Explain briefly the characteristics listed in **1**(a)(i) above. *[6 marks]*

(b) In a tabular form, state **four** differences between plants and animals. *[4 marks]*

(c) (i) Name **one** organism that exhibits both plant and animal features. [1 mark]

(ii) State **four** animal features and **two** plant features possessed by the organism named in **1**(c)(i) above. *[6 marks]*

2. **(a)** Define the following terms:

(i) elimination

(ii) excretion

(iii) secretion. *[6 marks]*

(b) Describe the digestion of boiled fish in the gut of humans.

(c) Make a diagram 8 – 10cm long of a longitudinal section of a villus and label fully. *[8 marks]*

3. **(a)** Explain briefly the following ecological terms:

(i) biosphere

(ii) habitat. *[4 marks]*

(b) Describe the mode of nutrition in a named carnivorous plant. *[7 marks]*

(c) State **three** reasons why the dispersal of seeds and fruits are important. *[3 marks]*

(d) State **six** methods of conserving soil. *[6 marks]*

4. A survey to determine blood groups was carried out on 250 people living in a community. The results are represented in a table below.

Blood group	**Percentage**
A	8.0
B	14.0
AB	32.8
O	45.2

(a) (i) Explain the term Co-dominance. *[2 marks]*

(ii) Calculate the number of individuals with co-dominant blood group. *[3 marks]*

(iii) What is the total number of individuals in the table that are able to donate blood to an accident victim with blood group B? *[6 marks]*

(b) A man whose blood group is heterozygous **A** is married to a woman whose blood group is **AB**. With the aid of a genetic diagram, suggest the possible blood groups of their children.

SECTION C *– Answer* ***one*** *question* ***only*** *from this part.*

6. **(a)** State **five** reasons why animals move from place to place. *[5 marks]*

(b) State **one** function **each** of the following structures found in plants:

(i) epidermis

(ii) phloem

(iii) sclerenchyma. *[3 marks]*

(c) Give **two** examples **each** of the following organisms:

(i) parasitic plants

(ii) saprophytes. *[4 marks]*

(d) State **two** adaptive features of plants which inhabit saltwater swamp.

(e) State **two** factors **each** which results in:

(i) increase in population density

(ii) decrease in population density

(f) Mention **four** ways in which modern agricultural activities may threaten the survival of species.

(g) State **three** reasons why mitosis is important to living organisms.

(h) State **three** causes of food spoilage.

SECTION B – *Answer* ***two*** *questions* ***only*** *from this part.*

1. **(a)** Explain **briefly** sexual reproduction in *Rhizopus*.

(b) A student suddenly stepped on a big snake, he cried for help and ran away.

(i) Name the hormone produced in the body for the reaction.

(ii) In which part of the human body is the hormone named in **1**(b)(i) produced.

(iii) State **five** changes that must have taken place as a result of the hormone named in **1**(a)(i).

(c) (i) In a tabular form, state **three** differences between excretion in flowering plants and excretion in humans.

(ii) List **two** organelles found in plant cell that are responsible for the excretion of metabolic wastes.

2. **(a)** Explain how the leaf of a flowering plant is a adapted for photosynthesis.

(b) Describe **briefly** the mode of feeding in Tapeworm.

(c) Name **one** mineral element **each** needed for the proper functioning of:

(i) bones

(ii) red blood cells

(iii) thyroid gland

(d) (i) State **three** benefits of including roughages in the diet of humans.

(ii) State **three** reasons why proteins are important to humans.

3. **(a)** (i) What is sewage?

(ii) State **five** effects of releasing untreated sewage into a stagnant water body.

(b) Explain surface terracing as a soil conservation method.

(c) Explain the term *Adaptation*.

(d) Explain **two** ways each by which the following organisms adapt to their habitat.

(i) hydrophytes

(ii) xerophytes

4. **(a)** Explain the following terms:

(i) test cross

(ii) monohybrid cross

(b) In a mango plant, the allele for bean-shaped seed is **r** and the recessive to round-shaped seed **R**. With the aid of a genetic diagram, determine the genotypes of the offspring if:

(i) a homozygous bean-shaped parent is crossed with a homozygous round-shaped parent.

(ii) a heterozygous bean-shaped parent is crossed with a heterozygous round-shaped parent.

Answer all the question in this section

5. **(a)** Copy and complete the table below.

Diseases	**<u>One</u> effect**	**<u>One</u> remedy**
Kidney stones		
Nephritis		
Diuresis		

(b) Make a labelled diagram of the carbon cycle.

(c) (i) What is Estuarine habitat?

(ii) Construct a food chain typical of an estuarine habitat.

(d) (i) Name **two** diseases that can attack plant crops.

(ii) State **three** ways of controlling plant diseases.

(e) State **four** functions of public health authority.

(f) State **four** ways of maintaining food hygiene in the community.

~~DISCLAIMER~~

These are NOT expo questions for WAEC but past questions of previous years.

You are advised to study these past questions with the Biology syllabus and textbooks to be well-prepared for your WAEC Biology paper.

Speaking of which,

Would you like to see or download the current WAEC syllabus and textbooks for Biology?

Click the link below...

www.toppers.com.ng