

WASSCE / WAEC BIOLOGY MAY / JUNE 2015 PAPER 1 (OBJECTIVE TEST)

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DO NOT TURN OVER THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

YOU WILL BE PENALIZED SEVERELY IF YOU ARE FOUND LOOKING AT THE NEXT PAGE BEFORE YOU ARE TOLD TO DO SO.

WHILE YOU ARE WAITING, READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

Paper 1

50 minutes

OBJECTIVE TEST

[50 MARKS]

1. Use **HB pencil** throughout.
2. If you have got a blank answer sheet, complete its top section as follows.
 - (a) In the space marked *Name*, write in capital letters your **surname** followed by your **other names**.
 - (b) In the spaces marked *Examination*, *Year*, *Subject* and *Paper*, write 'WASSCE', '2015 JUNE', 'BIOLOGY' and '1' respectively.
 - (c) In the box marked *Index Number*, write your **index number** vertically in the spaces on the left-hand side. There are numbered spaces in line with each digit. Shade carefully the space with the same number as each digit.
 - (d) In the box marked *Paper Code*, write the digits **504113** in the spaces on the left-hand side. Shade the corresponding numbered spaces in the same way as for your index number.
 - (e) In the box marked *Sex*, shade the space marked **M** if you are **male**, or **F** if you are **female**.
3. If you have got a pre-printed answer sheet, check that the details are correctly printed, as described in 2 above. In the boxes marked *Index Number*, *Paper Code* and *Sex*, **reshade** each of the shaded spaces.
4. An example is given below. This is for a **male** candidate, whose **name** is **Chukwuma Adekunle CIROMA**, whose **index number** is **4251102068** and who is offering **Biology 1**.

THE WEST AFRICAN EXAMINATIONS COUNCIL

PRINT IN BLOCK LETTERS		
Name: <u>CIROMA CHUKWUMA ADEKUNLE</u>	Examination: <u>WASSCE</u>	Year: <u>2015 JUNE</u>
Surname	Other Names	
Subject: <u>BIOLOGY</u>		Paper: <u>1</u>

INDEX NUMBER	PAPER CODE	SEX
4	5	Indicate your sex by shading the space marked M (for Male) or F (for Female) in this box: M <input type="checkbox"/> F <input type="checkbox"/>
2	0	
5	4	
1	1	
0	3	
1	1	
2	3	
0	1	
6	INSTRUCTIONS TO CANDIDATES	
8	1. Use grade HB pencil throughout. 2. Answer each question by choosing one letter and shading it like this: [A] [B] [C] [D] 3. Erase completely any answers you wish to change. 4. Leave extra spaces blank if the answer spaces provided are more than you need. 5. Do not make any markings across the heavy black marks at the right-hand edge of your answer sheet.	

For Supervisors only.
If candidate is absent shade this space:

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Answer all the questions.

Each question is followed by four options lettered A to D. Find out the correct option for each question and shade in pencil on your answer sheet, the answer space which bears the same letter as the option you have chosen. Give only one answer to each question. An example is given below.

Which part of the gill of fish is involved in gaseous exchange?

- A. Gill slits
- B. Gill bars
- C. Gill covers
- D. Gill filaments

The correct answer is Gill filaments, which is lettered D and therefore answer space D would be shaded.

[A] [B] [C]

Think carefully before you shade the answer spaces; erase completely any answer you wish to change.

Do all rough work on this question paper.

Now answer the following questions.

1. Which of the following organisms is **not** a protozoan?
 - A. *Amoeba*
 - B. *Ascaris*
 - C. *Plasmodium*
 - D. *Paramecium*
2. The structure of the cell membrane is a
 - A. double layer and a double protein layer.
 - B. middle bi-layer of protein with a lipid layer on either surface.
 - C. middle bi-layer of lipid with a protein layer on either surface.
 - D. protein layer with two inner lipid layers.
3. Which of the following cells is a specialized cell?
 - A. *Amoeba*
 - B. *Plasmodium*
 - C. Guard cell
 - D. Meristematic cell
4. The following organisms have structures for movement **except**
 - A. *Amoeba*.
 - B. *Spirogyra*.
 - C. *Volvox*.
 - D. *Paramecium*.

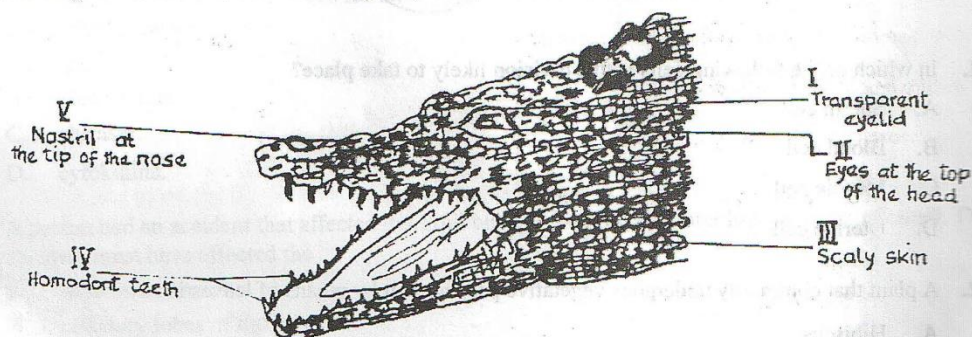
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5. Which of the following statements about protoplasm of a cell is **not** correct? It
- A. is a gelatinous mass.
 - B. consists of cytoplasm and nucleus.
 - C. is the liquid part of the nucleus.
 - D. contains cellular organelles.
6. When a *spirogyra* filament is placed in a concentrated salt solution for 30 minutes, the cell would become
- A. plasmolysed.
 - B. turgid.
 - C. shortened.
 - D. elongated.

The diagram below is an illustration of a crocodile. Use it to answer questions 7 and 8.



7. Which of the labelled parts enable the animal to stay under water **most** of the time?
- A. I, IV and V
 - B. I, II and V
 - C. I, III and IV
 - D. III, IV and V
8. Two characteristic features of the class to which the crocodile belongs are labelled
- A. I and II.
 - B. III and IV.
 - C. II and IV.
 - D. II and V.
9. Water and salts are **both** lost from the human body in
- A. breath and sweat.
 - B. breath and urine.
 - C. breath, urine and sweat.
 - D. sweat and urine.

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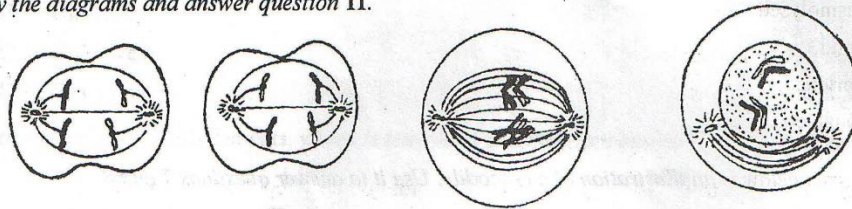
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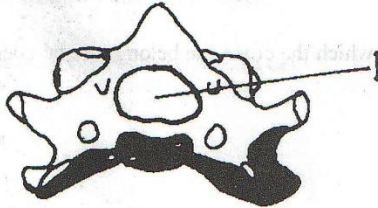
10. Which of the following features could be used to determine the growth of a seedling?
- A. Number of flowers
 - B. Number of leaves
 - C. Length of flowers
 - D. Length of radicle

The following diagrams show the sequence of events in early cell division. Study the diagrams and answer question 11.



11. In which of the following cells is this division likely to take place?
- A. Sperm cell
 - B. Blood cell
 - C. Muscle cell
 - D. Uterine cell
12. A plant that commonly undergoes vegetative propagation by means of leaves is
- A. Hibiscus.
 - B. *Bryophyllum*.
 - C. *Crotalaria*.
 - D. *Spirogyra*.

The diagram below illustrates a part of the mammalian skeleton. Use it to answer questions 13 and 14.



13. The part of the mammalian skeleton illustrated in the diagram is the
- A. atlas vertebrae.
 - B. axis vertebrae.
 - C. cervical vertebrae.
 - D. thoracic vertebrae.

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14. The function of the part labelled I is to
- provide support to the spinal cord.
 - provide surface for attachment of the muscle.
 - carry the spinal cord.
 - articulate with adjacent vertebrae.
15. Blood pressure is higher in the arteries as a result of
- stress.
 - contraction and relaxation.
 - blockage in the arteries.
 - presence of valves.
16. A farmer who wants to keep seeds for three years before planting and wants to prevent them from sprouting uses
- auxin.
 - gibberellins.
 - abscisin.
 - cytokinins.
17. A person had an accident that affected the skull but **not** the nose and later lost the sense of smell. The accident must have affected the
- nose by extension.
 - olfactory lobes of the brain.
 - passage from the nose to the brain.
 - part of the skull near the nose.
18. Ability of the human eye to focus images accurately on the retina is called
- astigmatism.
 - myopia.
 - adjustment.
 - accommodation.
19. Which of the following characteristic features is **not** associated with monocotyledonous plants?
- Well differentiated sepals and petals
 - Presence of fibrous root system
 - Presence of narrow leaves
 - Floral parts are in multiples of three
20. The **main** difference between a *seed* and a *fruit* is that a fruit
- is large while a seed is small.
 - has two scars while a seed has one.
 - is pigmented while a seed is not.
 - can be dispersed by animals while a seed cannot.

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21. Which of the following processes removes carbon (IV) oxide from the atmosphere?
- A. Burning fuels
 - B. Putrefaction
 - C. Photosynthesis
 - D. Respiration in plants

A student used the following steps in testing for a non-reducing sugar:

- I. added Benedict's solution to the sugar solution;
- II. added dilute hydrochloric acid to the sugar solution and boiled it;
- III. added sodium hydroxide solution to the solution in II and boiled;
- IV. added Benedict's solution to the cooled solution in III.

Use the information above to answer questions 22 to 24.

22. Why did the student add the dilute hydrochloric acid to the sugar solution in step II? To
- A. oxidize the sugar solution.
 - B. hydrolyse the sugar solution.
 - C. dry the sugar solution.
 - D. increase the volume of the sugar solution.
23. What is the importance of step II in the testing process? To
- A. neutralize the sugar solution.
 - B. soften the sugar solution.
 - C. change the colour of the sugar solution.
 - D. increase the acid content of the sugar solution.
24. The colour change to be observed in step IV is
- A. blue-black.
 - B. brick red.
 - C. purple.
 - D. violet.
25. Which of the following organs of the alimentary canal is **not** correctly matched with its function?
- A. Gall bladder – stores bile
 - B. Liver – stores glycogen
 - C. Appendix – releases enzymes
 - D. Teeth – grind food
26. A person suffering from obstruction of the bile duct is advised **not** to eat fats and oil because
- A. bile digests fats and oil.
 - B. fats and oil can only be absorbed when bile is absent.
 - C. bile emulsifies fats and oil.
 - D. bile adds water to digesting food.

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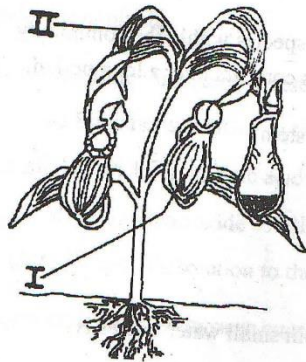
27. A community reaches a climax when
- only pioneer organisms are present.
 - new habitats are constantly being formed.
 - there is an introduction of new plants and animal species within the community.
 - the composition and size of a community remains constant over a long period.
28. Which of the following components make up an ecosystem?
- Decomposers, animals and non-living factors
 - Living and non-living factors
 - Plants and non-living factors
 - Plants, decomposers and non-living factors
29. The major problem experienced by organisms living in small water bodies is
- drying up.
 - oxygen deficiency.
 - scarcity of food.
 - wave action.
30. The capillarity of a soil refers to
- the particle size of soil.
 - how easily water passes through soil.
 - how well water rises up in soil.
 - proportion of water a soil holds.
31. An organism at the start of a food chain which provides the total input of energy into an ecosystem is the
- sun.
 - producer.
 - consumer.
 - decomposer.

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Study the diagram below and use it to answer questions 32 to 34.



32. The mode of nutrition of the plant in the diagram is
- A. photosynthetic and chemosynthetic.
 - B. saprophytic and carnivorous.
 - C. photosynthetic and carnivorous.
 - D. chemosynthetic and saprophytic.
33. The structure labelled I is
- A. a pitcher.
 - B. an onion.
 - C. a flower.
 - D. a tendril.
34. In which type of soil is the plant found? Soil that is
- A. poorly aerated.
 - B. water logged.
 - C. exposed.
 - D. nitrogen deficient.
35. Which of the following organisms is an endo-parasite?
- A. Tapeworm
 - B. Flea
 - C. Tick
 - D. Aphid

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36. Oil applied to the surface of water kills the larvae of mosquitoes through
- dehydration.
 - poisoning.
 - starvation.
 - suffocation.
37. Which of the following natural resources is **most** readily available to all organisms?
- Oil
 - Water
 - Air
 - Food
38. Which of the following resources is non-renewable?
- Forest reserve
 - Mineral deposit
 - Water
 - Wild life
39. Soil erosion could be prevented by
- flooding a farmland.
 - cover-cropping.
 - deforestation.
 - leaving the soil bare.
40. Which of the following statements about human blood groups is **not** true?
- A* is dominant over *B*
 - O* is recessive
 - B* is dominant over *O*
 - A* and *B* are co-dominant
41. Which of the following traits is **not** inheritable? Ability to
- taste *PTC*.
 - roll the tongue.
 - move the ear.
 - roll the eyeball.

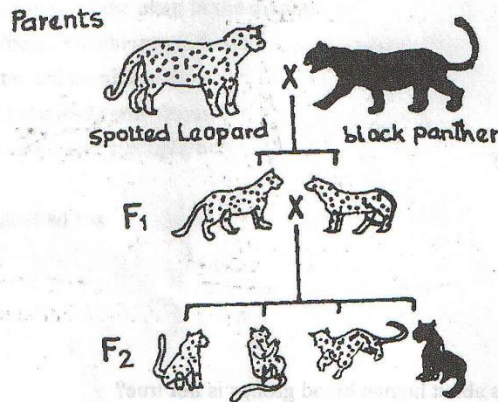
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42. A woman with blood group *A* gives birth to a child with blood group *O*. Which of the following blood groups **cannot** belong to the father?
- A*
 - B*
 - AB*
 - O*
43. How many chromosomes will be in a gamete if the normal cell has **four** chromosomes?
- 2
 - 4
 - 6
 - 8

Use the diagram below to answer questions 44 and 45.



44. Which of the following statements about the cross is **correct**?
- The gene for the spotted coat is recessive to the gene for the black coat
 - Black coat and spotted coat are co-dominant
 - The gene for the spotted coat is dominant over the gene for the black coat
 - The genotype for the F₁ are homozygous dominant
45. What are the genotypes of the parents if the gene for skin colour is *H*?

	Spotted Leopard		Black Panther
A.	<i>HH</i>		<i>hh</i>
B.	<i>HH</i>		<i>Hh</i>
C.	<i>Hh</i>		<i>Hh</i>
D.	<i>Hh</i>		<i>hh</i>

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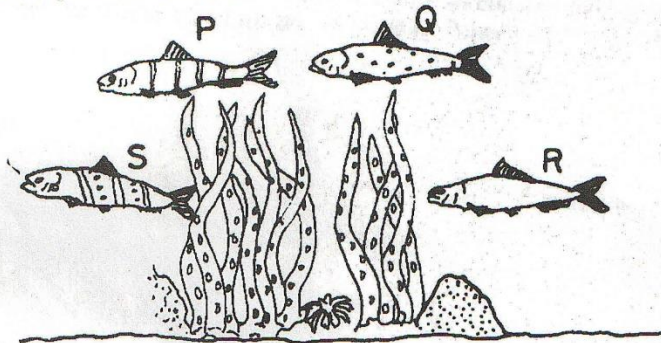
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46. According to Mendel's first law of inheritance, segregation of genes occur when
- A. tall plants are crossbred.
 - B. short plants are crossbred.
 - C. tall plants and short plants are crossbred.
 - D. plants are crossbred.
47. Which of the following statements about sex-linked characters is **not** true?
- A. They are usually borne on the *X* - chromosome.
 - B. They are more common in males
 - C. Males are usually carriers
 - D. They are not usually carried on the *Y* chromosomes

In explaining the term camouflage, to a class, the diagram below showing **four** varieties, **P, Q, R, and S** of the same species of fish living amongst water plants in a river were used.

Use the diagram to answer questions 48 to 50.



48. Which of the varieties is likely to decrease most in number if a predatory fish is introduced into the river?
- A. P
 - B. Q
 - C. R
 - D. S
49. Which of the varieties is **most** likely to outlive the others?
- A. P
 - B. Q
 - C. R
 - D. S
50. The variety selected in question 49 will outlive the others because the
- A. variety is the most beautiful.
 - B. variety does not have markings.
 - C. markings of the variety are similar to those of the environment.
 - D. predator does not like eating the variety.