

WAEC

BIOLOGY objective

Past questions

(PT. 1-7)

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WAEC BIOLOGY OBJECTIVE QUESTIONS (PT.1)

1. Which of the following organism is not classified as an animal?

- A. Amoeba
- B. Paramecium
- C. Euglena
- D. Obelia

2. An organisation that operates at the cellular level of organisation, carries out its physiological activities by using its _____

- A. cell membrane
- B. organelles
- C. small size
- D. cytoplasm

3. The organelle which eliminates water from the body of a protozoan is the _____

- A. plasma membrane
- B. contractile vacuole
- C. nucleus
- D. cell wall

4. Which of the following cell types has the least number of mitochondria?

- A. cardiac cells of the heart
- B. cells of the cornified layer
- C. muscle cells of the bladder
- D. muscle cells of the diaphragm

5. A typical plant cell is mainly distinguished from an animal cell by the possession of _____

- A. chloroplast and nucleus
- B. cell wall and cytoplasm
- C. chloroplast and cell wall
- D. cell wall and mitochondria

6. Which of the following characteristics do fungi share in common with animals?

- A. presence of digestive tract
- B. movement from one place to another
- C. storage of carbohydrate as glycogen

D. movement of centrioles during cell division

7. Which of the following processes involve diffusion?

A. opening and closing of stomatal pores

B. turgidity of herbaceous plants

C. absorption of water through root hairs

D. absorption of digested food into the villi

8. The mechanism of opening and closing of the stomata in plants is based on _____

A. turgidity and diffusion

B. turgidity and flaccidity

C. osmosis and diffusion

D. diffusion and flaccidity

9. In cellular respiration, energy is made available to organism by _____

A. removal of a phosphate group from ADP

B. breaking off a phosphate group from ATP

C. adding a phosphate group to glucose

D. breaking off a hydrogen ion from NADPH

10. Excretion in Paramecium is by diffusion because _____

A. its habitat is water and moist places

B. it has simple, small and few internal organs

C. it has a large surface area to volume ratio

D. it has a large efficient meganucleus

11. The axial skeleton is composed of the _____

A. skull and vertebra column

B. limbs and girdles

C. atlas and axis

D. radius and ulna

12. The inorganic component of bones consist of _____

- A. magnesium, sodium and calcium
- B. magnesium, phosphorus and calcium
- C. sodium, phosphorus and calcium
- D. potassium, magnesium and calcium

13. A pulse is best described as _____

- A. contraction of arteries to let our blood out
- B. contraction of veins to allow our blood into them
- C. dilation of arteries to accommodate blood rushing through
- D. pumping action of the heart to move blood round the body

14. The following characteristics are associated with the mammalian lungs **except** _____.

- A. large surface area
- B. expandable lungs
- C. moist surface

D. highly vascularised

15. The excretory system in mammals consist of the following parts **except** _____

- A. two kidneys
- B. two ureters
- C. two bladders
- D. one urethra

16. The organ that receives reduced flow of blood during vigorous exercise is the _____

- A. brain
- B. heart
- C. lungs
- D. limbs

17. The ear pinna is strengthened by _____

- A. blood pressure
- B. cartilage
- C. bone
- D. turgor pressure

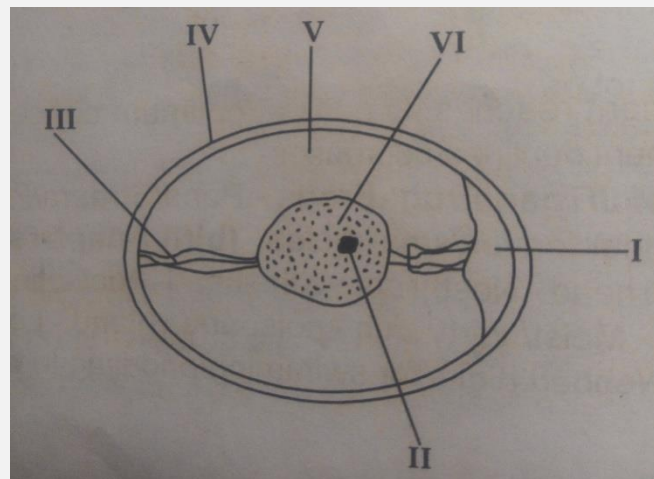
18. The relationship between the retina and the brain is similar to that between the _____

- A. cochlea and auditory nerve
- B. cochlea and the brain
- C. cochlea and the semi-circular canal
- D. ear drum and the brain

19. Which of the following statements about the development of the foetus is not correct?

- A. The circulatory system of the foetus is directly connected to the maternal blood vessels
- B. The foetus depends on its mother's blood for food and oxygen
- C. The foetus is surrounded by a water sac
- D. Food and oxygen are carried across the placenta to the embryo's blood

Use the diagram below to answer questions 20 and 21



20. The parts that supply food and water to the developing embryo are labelled

- A. I and II
- B. III and V
- C. V and VI
- D. II and III

21. The part labelled III is the _____

- A. albumen
- B. chalaza
- C. yolk
- D. air space

22. Which of the following statement is true about transpiration? It is the _____

- A. loss of water in form of vapour from the surface of the leaf
- B. loss of water in form of vapour from the body of the leaf
- C. absorption of water in form of vapour from the body of the plant
- D. movement of water through the body of the plant

23. Transportation of water in the xylem tissue involve the following **except** _____.

- A. root pressure
- B. capillary action
- C. transpiration pull
- D. translocation

24. The following are the major reasons why the butterfly lays eggs under the surface of a leaf **except** to _____

- A. shade the eggs from the direct rays of the sun
- B. protect the eggs from predators
- C. protect the eggs from being washed away by raindrops

D. camouflage the eggs

25. In which of the following organic compound is hydrogen-oxygen ratio equal to 2:1?

- A. proteins
- B. carbohydrates
- C. lipids
- D. vitamins

26. A man suffering from obesity must avoid meals containing _____

- A. margarine and butter
- B. rice and beans
- C. carrot and orange
- D. beef and fish

27. In testing for starch in a leaf, the leaf is first boiled in water for about a minute so that the _____

- A. cell walls are hardened
- B. cells are killed
- C. chlorophyll is dissolved out
- D. iodine will penetrate

28. Which of the following food substances is incorrectly linked to its enzymes?

- A. protein – trypsin
- B. fat – lipase
- C. sucrose – pepsin
- D. starch – amylase

29. Which of the following pH values is the best for the action of the enzymes – rennin and pepsin in the stomach?

- A. pH 2
- B. pH 7
- C. pH 8
- D. pH 9

30. The bacterium in the mutualistic association with legumes converts _____

- A. nitrates to ammonia
- B. ammonium compounds to nitrates
- C. nitrogen gas to ammonia
- D. nitrites to nitrates

31. A herbivore cannot feed on a piece of meat because it has no _____

- A. incisors to cut the meat
- B. canines to tear the meat
- C. premolars to grind the meat
- D. molars to mash the meat

32. In a particular habitat, the role of an organism is referred to as its _____

- A. level
- B. biomass
- C. niche
- D. space

33. The distribution of organisms in a fresh water habitat like a stream or pond is determined by the following factors **except** _____

- A. light penetration
- B. pH of the soil
- C. rainfall
- D. temperature

34. The speed of wind is measured using the _____

- A. wind vane
- B. anemometer
- C. photometer
- D. barometer

35. Which of the following is a biotic component of the ecosystem?

- A. soil
- B. rainfall
- C. light
- D. fungi

36. A moss plant can withstand drought by means of its _____

- A. spores
- B. rhizoids
- C. antheridia
- D. achegonia

37. Which of the following factors is the main problem facing xerophytic plants?

- A. competition for sunlight
- B. conservation of excess water
- C. inadequate roots for water absorption
- D. lack of adequate water

38. The following are greenhouse gases **except** _____

- A. carbon dioxide
- B. chlorofluorocarbon
- C. methane
- D. oxygen

39. Rural-urban migration in developing countries can be prevented by _____

- A. increasing the number of years in school
- B. putting up more factories in urban areas
- C. having boarding schools in rural areas
- D. even distribution of facilities in both region

40. Muscles are attached to bones by means of _____

- A. tendons
- B. ligaments
- C. cartilages
- D. nerves

41. In a population, food shortage may lead to _____

- A. an increased survival rate
- B. high reproduction rate
- C. intra-specific competition
- D. low rate of migration

42. The following effects are associated with deforestation **except** _____

- A. gully erosion
- B. extinction of plant species
- C. migration of wildlife
- D. increase in rainfall

43. The main reason for the conservation of wildlife is to _____

- A. create national parks for recreation

B. maintain ecological balance in communities

C. prevent hunters from being cruel to animals

D. save some species from extinction

44. Which of the following is an example of variation?

- A. blood group
- B. tongue rolling
- C. reproduction
- D. growth

45. The parameters of size, height, weight and colour in a population of living things are examples of _____

- A. environmental variation
- B. non-heritable variation
- C. continuous variation
- D. discontinuous variation

46. Fingerprints are useful in crime detection because _____

- A. the police have sophisticated fingerprint machines
- B. thieves may leave their prints at the scene of crime
- C. no two people have the same fingerprints
- D. fingerprints are easy to make

47. A person with blood group O can be given blood from persons who have blood belonging to _____

- A. group O only
- B. group A only
- C. groups A and O
- D. groups A, B and O

48. A man heterozygous for albino gene marries a woman who is also heterozygous for the gene. Both have normal skin colour. The probability that they will have an albino child is _____

- A. 1/3
- B. 1/4
- C. 4/4
- D. 2/4

49. Which of the following statements about heredity is not true? In heredity, the traits are _____

- A. carried by genes
- B. contained in ovum and sperm
- C. always transmitted by one parent
- D. transmitted from parents to offspring

50. An example of a saprophytic relationship is a/an _____

- A. vulture feeding on decaying meat
- B. mushroom growing on decaying vegetation
- C. boy eating stale bread
- D. earthworm feeding on decaying vegetation

WAEC BIOLOGY OBJECTIVE QUESTIONS (PT.2)

1. The branch of Biology that deals with the principles of classification of organisms is known as _____

- A. biological index
- B. nomenclature
- C. taxonomy
- D. ecology

2. Which of the following structures is a tissue?

- A. vessel element
- B. blood
- C. sieve tube element
- D. erythrocytes

3. Which of the following cells are not regarded as specialized?

- A. sperm cells
- B. root tip cells
- C. muscle cells
- D. somatic cells

4. Which of the following pairs of cells carry out the same function?

- A. cheek cell and red blood cell
- B. spermatozoan and ovum
- C. palisade cell and epidermal cell
- D. root tip cell and guard cell

5. If Amoeba is placed in a salt solution, the contractile vacuoles would _____

- A. be bursting more frequently
- B. be more numerous
- C. be formed less frequently
- D. grow bigger before they burst

6. In which of the following habitat is Paramecium not found?

- A. pond
- B. aquarium
- C. lake
- D. puddle

7. The following processes are involved in water movement in endodermis **except** _____

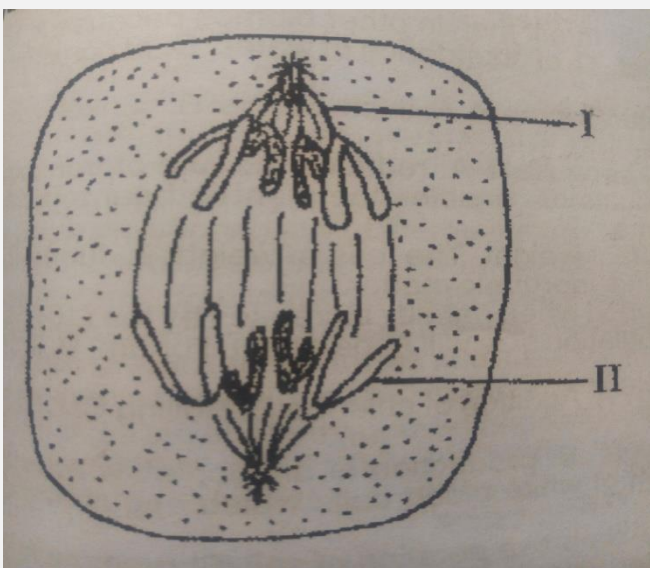
- A. osmosis
- B. vascular pathway

- C. diffusion
- D. active transport

8. Cells that utilizes a lot of energy are characterised by the presence of a large number of _____

- A. vacuoles
- B. mitochondria
- C. endoplasmic reticulum
- D. ribosomes

The diagram below represents the phenomenon of growth in a meristemic cell of a plant. Use it to answer questions 9 and 10.



9. The part labelled II in the diagram is the _____

- A. centrioles
- B. chloroplast
- C. chromatid
- D. tonoplast

10. The part labelled I is called the _____

- A. nucleolus
- B. centromere
- C. centriole
- D. spindle

11. Secondary growth is brought about by the activities of the _____

- A. phellogen and phelloderm
- B. phellogen and procambium
- C. vascular cambium and phelloderm
- D. vascular cambium and phellogen

12. A monocot root is different from a dicot root by having _____

- A. endodermis
- B. cambium
- C. wide pith
- D. root hair

13. Which of the following statements best describes haemoglobin? It is _____

- A. yellowish in colour
- B. a red blood cell
- C. an oxygen carrying pigment
- D. needed for blood clotting

14. Inhaled air is made warm and moist in the _____

- A. epiglottis
- B. nasal cavity
- C. trachea
- D. mouth

15. Which of the following structures is not involved in respiration?

- A. lung books
- B. mouth
- C. stomach

D. trachea

16. Filtrate in the Bowman's capsule contains vitamins because _____

- A. only a little amount is required for the body
- B. they can be reabsorbed into the blood
- C. they have low molecular weight
- D. most of them are fat soluble

17. More sweat is produced during muscular exercise because _____

- A. the contracting muscles produces water
- B. fermentation occurs in the muscles
- C. the temperature of the body rises
- D. the muscle fatigues

18. Which of the following neurons may not have Myelin sheath?

- A. effector cells
- B. intermediate neurons
- C. motor neurons
- D. sensory neurons

19. Which of the following is an effector organ?

- A. tongue
- B. skin
- C. nose bridge
- D. ear gland

20. During sexual reproduction in Paramecium, how many times does the zygote divide to produce eight nuclei?

- A. 1
- B. 2
- C. 3
- D. 4

21. The testes in male mammals descend into the scrotal sac because _____

- A. there is congestion in the lower abdomen

- B. they run the risk of being destroyed
- C. they need special support
- D. they require a relatively low temperature

22. Some animals return to water bodies to reproduce because _____

- A. natural enemies destroy their eggs on land
- B. water nourishes their embryos and their young ones
- C. they are close to their ancestors and imitate them
- D. the temperature on land is not suitable for the development of their embryos

23. Which of the following methods is appropriate for the cultivation of cassava?

- A. budding
- B. fragmentation
- C. root cutting
- D. stem cutting

24. What will be the chromosome number of the hybrid of two varieties of a plant with 36 chromosomes in the endosperm cell?

- A. 12
- B. 24
- C. 36
- D. 48

25. Kreb's cycle occurs in the _____

- A. mitochondria
- B. cytoplasm
- C. nucleus
- D. ribosomes

26. The process whereby electrons are emitted from chlorophyll and returned to it unchanged is known as _____

- A. non-cyclic phosphorylation
- B. photochemical reaction
- C. photophorylation
- D. cyclic photophorylation

27. Which of the following statements about photosynthesis is not true?

- A. plants can photosynthesize without an increase in dry weight
- B. carbon dioxide is absorbed by the leaves in bright light
- C. oxygen is produced during photosynthesis from the breakdown of water
- D. photosynthesis occurs in green plants

28. The equation below represents the process of Glycolysis.



X in the equation represents _____

- A. glucose diphosphate
- B. glucose phosphate
- C. glucose triphosphate
- D. fructose phosphate

29. The removal of all phloem tissues of the stem of a plant

close to the root system for a long period of time is likely to _____

- A. provide more energy to the roots
- B. accumulate more starch in the roots
- C. cause the underground roots to develop buds
- D. cause the plant to wither and die

30. The conversion of glucose to starch in the leaf during the day principally _____

- A. enables photosynthesis
- B. prevents osmotic problems
- C. enables the leaf to store the starch
- D. enables glucose to be used up

31. Which of the following groups of substances are not six-carbon compounds?

- A. glucose and lactose
- B. lactose and cellulose
- C. glucose, lactose and pyruvate

D. pyruvate and cellulose

32. A purple colour was obtained when sodium hydroxide solution and a drop of copper sulphate solution was added to a food substance. The food substance is likely to be a _____

- A. carbohydrate
- B. fat
- C. protein
- D. sugar

33. Which of the following enzymes is active in the duodenum?

- A. pepsin
- B. rennin
- C. trypsin
- D. amylase

34. The following organisms are producers **except** _____

- A. hibiscus
- B. mushroom
- C. cactus

D. spirogyra

35. Which of the following structures produces the greatest variety of digestive enzymes?

- A. salivary gland
- B. pancreas
- C. stomach
- D. colon

36. The following are abiotic components of the ecosystem **except** _____

- A. temperature
- B. oxygen
- C. bacteria
- D. soil

Use the information on capture-recapture method to calculate the total number of organisms in a habitat.

First capture = 200

Second capture = 120

Number of organism with mark in second capture = 40

37. The total number of organism therefore is _____

- A. 200
- B. 360
- C. 600
- D. 800

38. Ecological investigation in a habitat includes the following procedures **except** _____

- A. choosing a habitat
- B. identification of specimen
- C. determining the genetic make-up of specimens
- D. measuring biotic and abiotic factors

39. Which of the following substances when lost from the body of a mammal will not be returned to the ecosystem?

- A. sweat
- B. urea
- C. heat energy
- D. carbon dioxide

40. The rate of decomposition of organisms is faster in the tropical rainforest than in other biomes because _____

- A. of the relatively constant daylight
- B. there are more plants per square feet
- C. of abundance of water
- D. of constant cool temperature

41. A xerophytes conserves water by possession of the following features **except** _____

- A. thick cuticles
- B. sunken stomata
- C. broad leaves
- D. fleshy stem

42. The falling off of leaves of deciduous trees is helpful to the plant because it _____

- A. reduces the rate of transpiration

B. enables the plant to conveniently eliminate its excretory products

C. enables the plant to bear more fruits

D. ensures that the limited mineral salts gets to only growing regions

43. A sample of wet garden soil of known weight was heated to constant weight. The loss of weight is due to loss of _____

- A. water
- B. organic matter
- C. water and organic matter
- D. water and inorganic matter

44. Assuming that a period of stable population size is followed by a period when natality increases by 10% and immigration by 20% of the population size. The population size will _____

- A. be at equilibrium
- B. increase by 40%

- C. begin to increase
- D. begin to decrease

45. Which of the following methods does not make water fit for drinking?

- A. addition of chlorine
- B. boiling
- C. distillation
- D. addition of alum

46. Vaccination results in _____

- A. aiding red blood cells to carry more oxygen
- B. production of antibodies which destroys toxins of germs
- C. arresting excessive bleeding
- D. production of white blood cells which engulfs and digests bacteria

47. Leguminous crops are incorporated into crop rotation in order to _____

- A. improve aeration in soil
- B. promote nitrogen fixation

C. increase the rate of soil formation

D. improve upon the water holding capacity of the soil

48. Which of the following practices improves crop yield in a clayey soil? Addition of _____

- A. more water and humus
- B. lime and humus
- C. fertilizers
- D. weedicides and fertilizers

49. Which of the following activities promotes forest conservation?

- A. lumbering
- B. use of firewood for cooking
- C. afforestation
- D. production of paper

50. Which of the following statements is not true about continuous variation? It _____

- A. is usually controlled by several genes

- B. can be influenced by environmental factor
- C. follows a normal distribution curve
- D. is usually controlled by one or two pairs of genes

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WAEC BIOLOGY OBJECTIVE QUESTIONS (PT.3)

1. The science of life is referred to as _____

- A. Anatomy
- B. Biology
- C. Ecology
- D. Phylogeny

2. The epidermis of a leaf is considered an example of a tissue because the cells _____

- A. allow sunlight to pass through
- B. are covered by a waxy cuticle
- C. all possess a similar structure and function
- D. allow water to enter them by osmosis

3. The organism at the organ level of organisation of life is _____

- A. euglena
- B. spirogyra
- C. ginger
- D. tapeworm

4. The disadvantages of complexity of organisation in the higher organisms is that it leads to _____

- A. mutual interdependence between component cells
- B. internal structure specialization
- C. increased adaptation to environment
- D. slower rate of diffusion of oxygen to individual cells

5. In which of the following multicellular organisms is interdependence of cells maintained?

- A. spirogyra
- B. volvox
- C. eudorina
- D. pandorina

6. Which of the following processes occur in the second phase of meiosis?

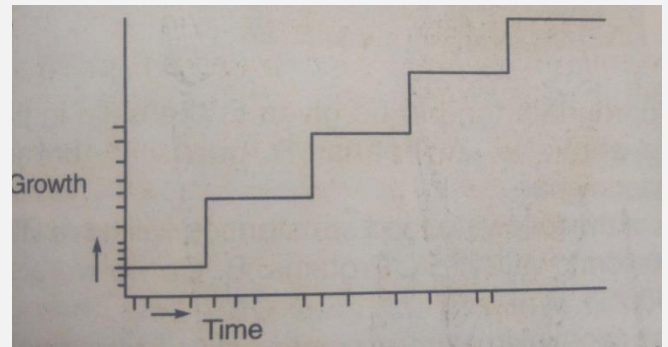
- A. homologous chromosomes separate
- B. two daughter cells are formed
- C. fertilization occur
- D. segregation of genes occur

7. The muscle cell fluid of an athlete was tested immediately after a 100m race and was found to contain a high concentration of lactic acid. Explain what could have done this. The _____

- A. athlete must have eaten food containing lactic acid just before the race
- B. athlete must have injected lactic acid into his blood just before the race
- C. athlete's muscle must have carried out anaerobic respiration during the race
- D. athlete must have inhaled lactic acid from the environment during the race

8. The graph below represents the growth pattern of an animal. Which of the following groups of

animals shows this pattern of growth?



- A. cestoda
- B. reptilia
- C. amphibia
- D. insecta

9. The pulmonary circulation involves movement of the blood to and from the _____

- A. brain
- B. kidneys
- C. liver
- D. lungs

The table below shows the blood composition of four individuals. Use the information in the table to answer questions 10 and 11.

| Blood composition (individuals) | Plasma | Red blood cells | White blood cells | Platelets |
|---------------------------------|--------|-----------------|-------------------|-----------|
| I | Normal | Normal | High | Normal |
| II | Normal | Normal | Normal | Normal |
| III | Normal | Normal | Low | Normal |
| IV | Normal | Normal | Normal | Low |

10. Which of the individual is likely to be suffering from haemophilia?

- A. I
- B. II
- C. III
- D. IV

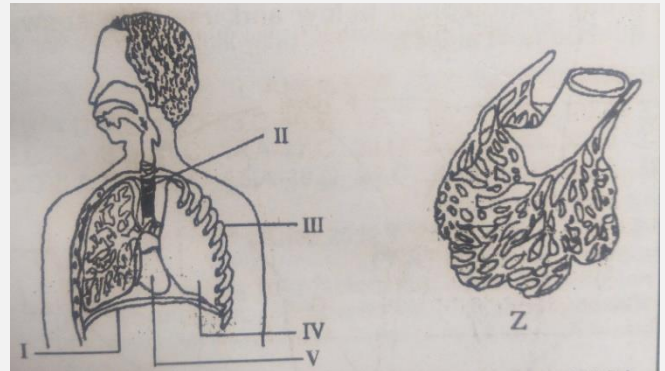
11. Which of the individuals is likely to have HIV?

- A. I
- B. II
- C. III
- D. IV

12. A student dissecting an animal specimen discovered that it had two auricles and one ventricle. The animal is likely to be a/an _____

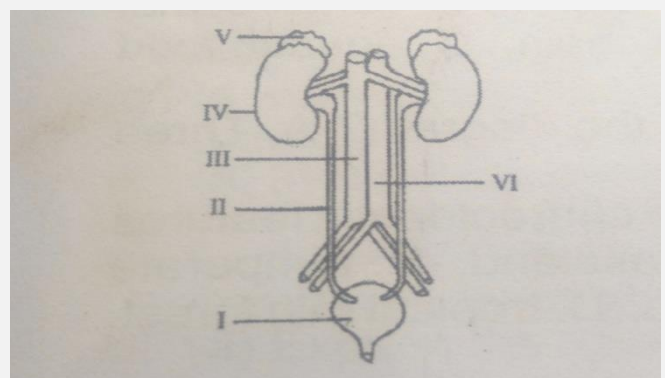
- A. fish

- B. reptile
- C. amphibian
- D. bird



13. The diagram above are parts of a human lung. Which of the labelled parts is diagram Z taken from?

- A. II
- B. III
- C. IV
- D. V



14. The diagram above is an illustration of the human

excretory system. Which of the labelled parts contains the highest amount of nitrogenous waste?

- A. I
- B. II
- C. IV
- D. VI

15. Increasing adrenaline content of the blood would be expected to decrease the flow of blood to the _____

- A. liver
- B. heart
- C. lungs
- D. brain

16. The following are all examples of a simple reflex action **except** _____

- A. swallowing
- B. sneezing
- C. walking
- D. blinking

17. Impulses are conducted towards the nerve cell through the _____

- A. myelin sheath
- B. dendrons
- C. axons
- D. synaptic nodes

18. The function of the convex lens in the correction of eye defects is _____

- A. diverge light rays from far objects to focus image on the retina
- B. converge light rays to focus image behind the retina
- C. converge light rays to focus image before the retina
- D. converge light rays from far objects to focus their image on the retina

19. Which of the following parts of the eye contains light sensitive cells?

- A. choroid

- B. iris
- C. retina
- D. lens

20. The hair on the human skin will stand erect when the person is _____

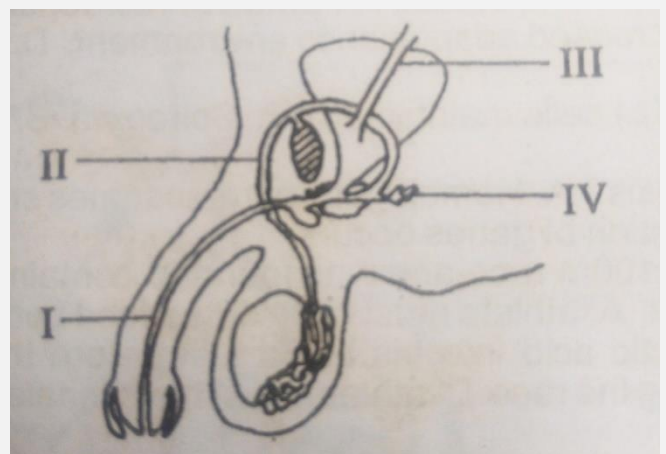
- A. in an air-conditioned room
- B. strolling in the sun
- C. taking a hot drink
- D. doing strenuous exercise

21. When fertilization occurs that leads to the formation of a zygote, which of the following processes take place?

- A. the tail of the sperm fuses with the egg cell
- B. both tail and head of the sperm fuses with egg cell
- C. the nucleus of the sperm fuses with egg cell
- D. the egg cell develops on its own without the sperm

22. Which of the following structures in a flower develops into a seed?

- A. testa
- B. integument
- C. ovule
- D. ovary



23. An illustration of a human male reproductive system is shown above. Which of the labelled part can be cut to ensure permanent sterility?

- A. I
- B. II
- C. III
- D. IV

24. The brightly coloured petals in some plants is an adaptive colouration for _____

- A. feeding
- B. pollination
- C. dispersal
- D. shedding

25. Squirrels easily kill some trees because _____

- A. they inject poisonous substances into the trees
- B. most trees are susceptible to squirrel bites
- C. they feed voraciously on the roots
- D. they gnaw the bark and destroy the phloem

26. The major role played by accessory pigments during photosynthesis is to _____

- A. add colours to plant but not to trap light energy
- B. trap light energy that chlorophyll cannot absorb

- C. transfer energy from chlorophyll to other pigments
- D. prevent chlorophyll from absorbing unnecessary light

27. The main raw material required for photosynthesis are _____

- A. oxygen and water
- B. oxygen and carbon dioxide
- C. oxygen and chlorophyll
- D. carbon dioxide and water

28. What is the benefits of thunder and lightning to farmers?

- A. addition of nitrates to the soil
- B. aeration of the soil
- C. removal of harmful bacteria from the soil
- D. addition of rain water to the soil

29. Which of the following substances must be present in the soil for growth of a healthy green plant?

- A. amino acid
- B. carbon
- C. glucose salts
- D. magnesium ions

30. The purpose of proteins in the diet of a mammal is to _____

- A. promote growth and repair cells
- B. break down molecules
- C. regulate the flow of chime
- D. serve as co-factors for enzymes

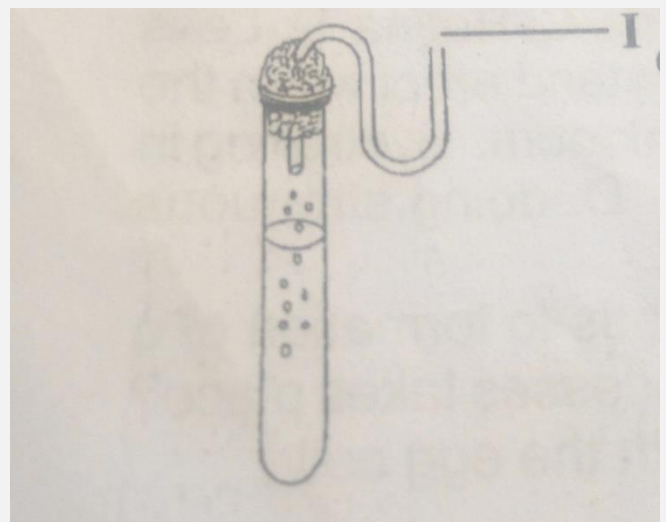
31. Excess carbohydrates can be stored in the muscles in form of _____

- A. cellulose
- B. glucogen
- C. chitin
- D. lipids

32. The bones of the legs of a six year old boy are observed to be weak and crooked. Which of the following elements were deficient in his mother's diet at pregnancy?

- A. sodium and iron
- B. iron and manganese
- C. calcium and phosphorus
- D. magnesium and surphur

33. The diagram above is an illustration of an experimental setup to test the action of yeast. What test would be used to confirm the nature of the gas given off at I?



- A. insert a glowing splint
- B. pass the gas through lime water
- C. insert a piece of litmus paper
- D. smell the gas

34. Which of the following digestive enzymes would be

greatly affected if the liver fails to produce bile?

- A. amylase
- B. cellulose
- C. lipase
- D. protease

35. The appropriate food to be given to the child in the picture below is _____



- A. beans
- B. garri
- C. bread
- D. avocado pear

36. Which of the following food substances will have little or no calorific value?

- A. proteins
- B. carbohydrates
- C. lipids
- D. water

37. A space containing a group of interactive organisms is called _____

- A. community
- B. habitat
- C. ecosystem
- D. population

38. The area around the earth where life activities go on is referred to as _____

- A. biosphere
- B. lithosphere
- C. habitat
- D. ecosystem

39. The following are abiotic components of the ecosystem **except** _____.

- A. bacteria
- B. topography

C. water

D. wind

40. Which of the following instruments would be most appropriate in comparing the air pressure at different places in a habitat?

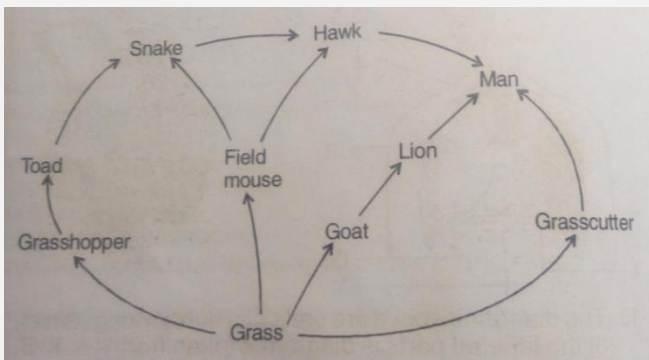
A. hygrometer

B. barometer

C. photometer

D. air pressure disc

Study the diagram below and use it to answer questions 41 and 42.



41. The best title for the above diagram is _____

A. terrestrial food web

B. terrestrial food chain

C. aquatic food web

D. aquatic food chain

42. How many food chains are in the diagram?

A. three

B. four

C. five

D. six

43. Plants with breathing roots are characteristic features of vegetation in _____

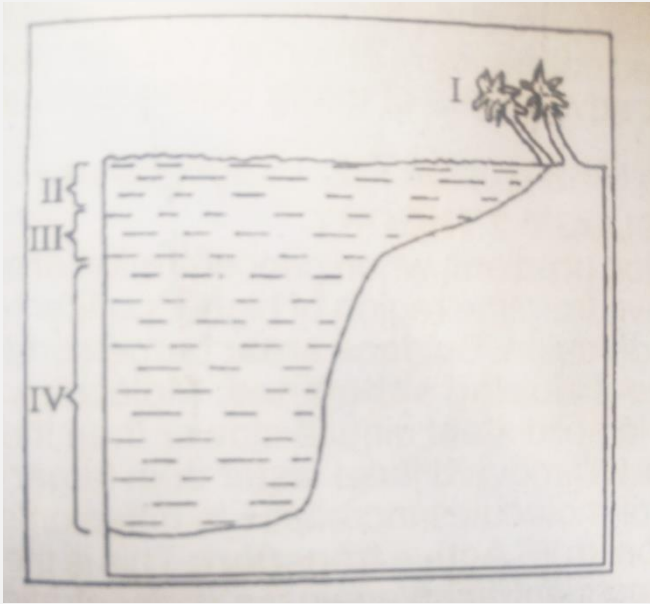
A. tropical grasslands

B. temperate grasslands

C. saltwater swamps

D. tropical rainforest

Study the diagram of the zones of a marine habitat below and use it to answer questions 44 and 45.



44. In which of the zones can very few organism be found?

- A. I
- B. II
- C. III
- D. IV

45. Which of the following factors exert a major effect on the distribution of living organisms in the habitat?

- A. salt
- B. pH
- C. light
- D. rainfall

46. The use of water closet and septic tanks is preferred to the use of buckets and pit latrines because _____

- A. it is cost effective
- B. contaminated faeces are completely kept away from flies
- C. the water for flushing contains chlorine which kills germs
- D. it prevents flies from breeding

47. The detection of vibro cholerae in public drinking water is a sign of _____

- A. clean water
- B. outbreak of disease
- C. water pollution
- D. decayed organism in water

48. Which of the following factors will be less likely to act as a density dependent limiting factor in a population of mice?

- A. build-up of waste products
- B. predation
- C. parasitism

D. unfavourable climate

49. The primary cause of species endangerment is _____

- A. disappearing habitats
- B. increase in temperatures
- C. acid rain
- D. exposure to hazardous waste

50. The following pairs of traits are examples of continuous and discontinuous variations respectively **except** _____.

- A. eye colour and body weight
- B. height and blood group
- C. skin colour and fingerprints
- D. body weight and tongue rolling

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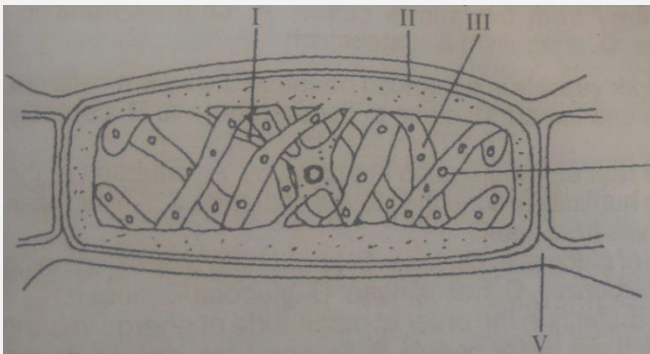
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WAEC BIOLOGY OBJECTIVE QUESTIONS (PT.4)

1. In which of the following levels of classification are the members most similar?

- A. order
- B. genus
- C. species
- D. phylum

Use the diagram below to answer questions 2 and 3.



2. The diagram represents a _____

- A. cell
- B. filament
- C. colony
- D. part of a living organism

3. Pyrenoid is present in the structure labelled _____

- A. IV
- B. III
- C. II
- D. I

4. Spirogyra is regarded as a multicellular plant because _____

- A. the cylindrical cells are linked end to end
- B. its cells are linked together by cytoplasmic strands
- C. its cells are large
- D. it is an algae containing a large vacuole

5. Which of the following pairs of structures in living organisms do not perform similar functions?

- A. lungs and spiracles
- B. root hairs and mammalian hair
- C. feathers and scales
- D. contractile vacuoles and kidneys

6. Which of the following sequence is the correct

arrangement of tissues in the anatomy of a young dicotyledonous stem from the inside to the outside?

A. pith, phloem, cambium, xylem, parenchyma, collenchyma and epidermis

B. xylem, phloem, cambium, cortex, endodermis, collenchymas and epidermis

C. pith, xylem, cambium, phloem, collenchyma, parenchyma and epidermis

D. phloem, xylem, cambium, cortex, endodermis, collenchyma ad epidermis

7. An animal which possesses scale, nares and backbone is likely to be a _____

A. toad

B. lizard

C. rat

D. bat

8. The opening of the guard cells of the epidermis in plants is by the process of _____

A. osmosis

B. diffusion

C. active transport

D. transpiration

9. What happens to a plant if the shoot tip is cut off and replaced by an agar block containing auxin? It will _____

A. stop growing

B. grow rapidly

C. continue to grow normally

D. die completely

10. Anaerobic respiration results in the production of a _____

A. more energy than aerobic respiration

B. no energy

C. an equal amount of energy to aerobic respiration

D. less energy than aerobic respiration

11. Which of the following is not a skeletal tissue?

- A. plasma
- B. chitin
- C. cartilage
- D. bone

12. Which of the following statement is not correct about the mammalian heart?

- A. oxygenated blood enters the left auricle from the pulmonary vein
- B. the walls of the ventricle are thicker than those of the auricle
- C. blood passes from the right ventricle to the left auricle through the aorta
- D. the tricuspid valve prevents the back flow of blood in the right auricle

13. Which of the following organs are used for gaseous exchange in a mature toad?

- A. gills, lungs and eardrum

B. lungs, mouth and eardrum

C. mouth, skin and gill

D. skin, lungs and mouth

14. Which of the following structures is used for respiration in insects?

- A. lungs
- B. thorax
- C. cuticle
- D. spiracle

15. Which of the following statements is correct about the diaphragm of a mammal is not correct? It _____

- A. separates the thorax from the abdomen
- B. is a thick layer of muscle
- C. is made of epithelial cells
- D. is part of the human respiratory apparatus

16. A substance represented in the glomerular filtrate in the mammalian kidney is _____

- A. glucose
- B. fibrinogen
- C. albumen
- D. blood platelets

17. In humans, excretion of hypertonic urine is associated with the _____

- A. distal convoluted tubule
- B. loop of Henle
- C. Bowman's capsule
- D. proximal convoluted tubule

18. The maintenance of a stable internal environment within the body of a mammal is known as _____

- A. osmosis
- B. plasmolysis
- C. homeostasis
- D. excretion

19. Which part of the nephron is associated with ultra-filtration?

- A. distal convoluted tubule
- B. proximal convoluted tubule

- C. collecting duct
- D. bowman's capsule

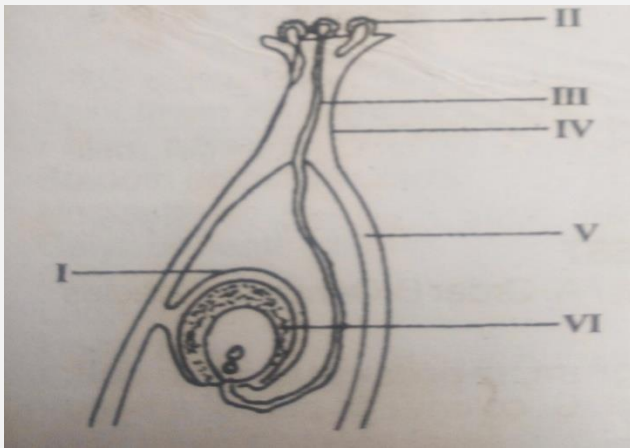
20. Which of the following condition would result in a decrease in the production of antidiuretic hormone?

- A. abnormally high blood sugar level
- B. drinking large quantities of water
- C. increase in osmotic pressure of the blood
- D. period of strenuous exercise

21. Which of the following structures is not essential in wind pollinated flowers?

- A. anther
- B. ovary
- C. stigma
- D. petal

Study the diagram below and use it to answer questions 22-24.



22. Which part of the flower produces the structure labelled III?

- A. carpel
- B. pollen
- C. stigma
- D. anther

23. The parts labelled III and IV respectively are called _____

- A. pollen tube and style
- B. pollen grain and pollen tube
- C. anther and filament
- D. stigma and style

24. Which of the labelled parts will become a component of the seed after fertilization?

- A. I
- B. II
- C. IV
- D. V

25. The resolution of a microscope refers to its power to _____

- A. increase an object's apparent size
- B. distinguish clearly between two objects
- C. scan the surface of an object
- D. focus on an object

26. The process by which plants manufacture food from carbon dioxide and water using energy from the sun is called _____

- A. chemosynthesis
- B. photosynthesis
- C. anabolism
- D. catabolism

27. Conduction of water and mineral salt through the xylem

vessels is enhanced because the xylem cells are _____

- A. thickened with lignin
- B. long, narrow tubes placed end to end
- C. close to the endodermis
- D. centrally placed in the roots

28. Which of the following factors is likely to increase the rate of transpiration in plant?

- A. reduction in the number of stomata per unit surface area
- B. increase in humidity around the leaves of plants
- C. an increase in leaf surface area to volume ratio
- D. removal of leaves from plants

29. The name of the enzyme that catalyses the conversion of glucose to glucose-6-phosphate at the beginning of glycolysis is _____

- A. phospho-fructokinase
- B. glucose isomerise

- C. hexokinase
- D. glucose-6-kinase

30. The correct arrangement of food classes of the same quantity in the order of magnitude of energy value in animals in descending order is _____

- A. carbohydrates, fats and oils, water, proteins
- B. fats and oils, carbohydrates, protein, water
- C. water, fats and oils, carbohydrates and proteins
- D. proteins, fats and oils, water, carbohydrates

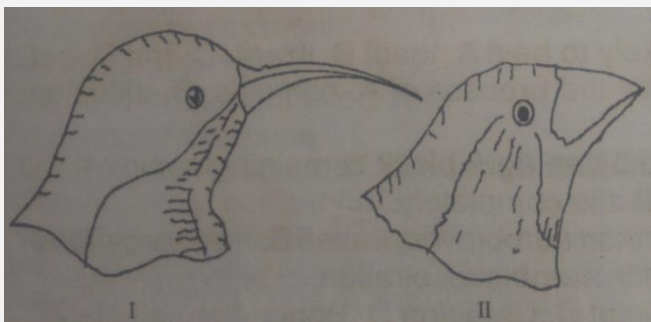
31. Which of the following substances is not a complex carbohydrate?

- A. glycogen
- B. cellulose
- C. starch
- D. glucose

32. Which of the following association is an example of epiphytism?

- A. lice in human hair
- B. mistletoe on citrus fruits
- C. egret on cow
- D. fern on palm tree

Study the diagram below carefully and use them to answer questions 33 and 34.



33. What is the likely food of the bird in I?

- A. worms
- B. seed
- C. nectar
- D. fishes

34. The food of the bird in II is _____

- A. worms
- B. seed
- C. nectar
- D. fishes

35. Ecology simply means the study of _____

- A. particular species of plants and animals
- B. the inter-relationship between organisms and their environment
- C. the properties of a habitat
- D. the inter-relationship between plants and animals

36. The maximum size of a population that a given area can support is known as _____

- A. population density
- B. carrying capacity
- C. population growth
- D. maximum population

37. The producers in a food chain in an aquatic environment are _____

- A. birds
- B. phytoplanktons
- C. zooplanktons
- D. fishes

38. The frog is considered a better swimmer than the toad because it _____

- A. has more pronounced webbed digits
- B. has much longer and stronger hind limbs
- C. lives in water most of the time
- D. is more streamlined than the toad

39. The bacteria that reduces nitrates in the soil into gaseous nitrogen are referred to as _____

- A. nitrifying bacteria
- B. denitrifying bacteria
- C. putrefying bacteria
- D. saprophytic bacteria

40. A pyramid of numbers is constructed by _____

- A. comparing living and non-living things
- B. measuring productivity
- C. conducting census
- D. labelling the living organisms

41. The main reason for immunizing children is to _____

- A. destroy pathogens in their bodies
- B. increase the production of white blood cells
- C. stimulate the production of antibodies
- D. stimulate the production of antigens

42. Rhizobium which lives in the root nodules of leguminous plants is an example of the association known as _____

- A. commensalism
- B. epiphytism
- C. mutualism
- D. saprophytism

43. *Ascaris lumbricoides* is a parasitic _____

- A. flatworm
- B. roundworm
- C. arthropod
- D. elastic worm

44. The following organisms are pests of plants **except** _____

- A. birds
- B. nematodes
- C. bacteria
- D. rodents

45. The absence of alimentary canal in the parasitic flatworm can be attributed to the fact that _____

- A. its body does not feed
- B. it has no enzymes
- C. its body absorbs digested food
- D. it has suckers on the scolex

46. Which of the following statement is not a reason for conserving wildlife?

- A. attraction of tourists into the country
- B. serving as a source of food
- C. serving as a source of income
- D. increasing the amount of rainfall

47. Which of the following human activities would help prevent endangered species from extinction?

- A. uncontrolled killing of the species
- B. regular clearing of the forest vegetation
- C. temporary maintenance of the species in zoological gardens
- D. regular irritation of their natural habitat

48. In genetics, linkages refer to the linking of genes of the _____

- A. same chromosomes
- B. different chromosomes
- C. same nucleus
- D. different nuclei

49. A man's blood group is AB. What is the probability of the man giving birth to a child with blood group O?

- A. 0%
- B. 25%
- C. 50%
- D. 100%

50. When a man who is Rh-positive marries a woman who is Rh-negative, there will be an incidence of _____

- A. stillbirth
- B. sicklers
- C. albinos
- D. living children

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WAEC BIOLOGY OBJECTIVE QUESTIONS (PT.5)

1. The excretory product of protozoans is _____

- A. amino acids
- B. uric acids
- C. ammonia
- D. urea

2. Which of the following is a living organism?

- A. muscle
- B. nucleus
- C. yeast
- D. mitochondrion

3. Which of the following organisms is the most specialised?

- A. paramecium
- B. amoeba
- C. spirogyra
- D. rhizopus

4. Active transport can be defined as the movement of _____

A. substances from a region of higher concentration to a region of lower concentration

B. substances from a region of lower concentration to a region of higher concentration across a living cell membrane

C. substances across a living cell membrane using energy from the cell

D. movement of molecules in a medium

5. Which of the following cell inclusion can destroy other cell organelles?

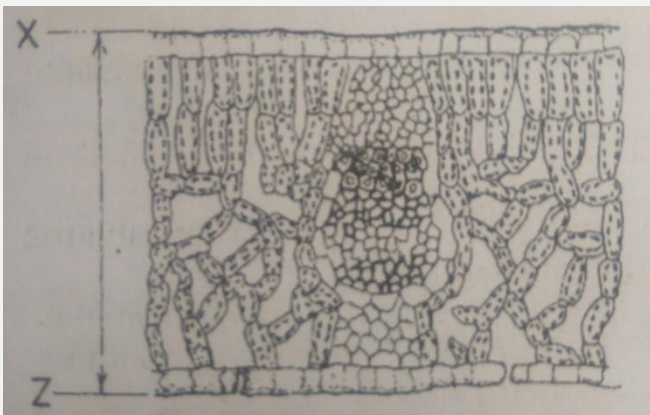
- A. centriole
- B. ribosome
- C. lysosome
- D. mitochondrion

6. In which of the following yam tissue will osmosis occur?

- A. boiled and peeled
- B. raw and peeled
- C. boiled and unpeeled

D. roasted and peeled

7. The line XZ in the diagram below represents an actual distance of 10.0cm and the length of the diagram is 5.0cm. What is the magnification of the diagram?



- A. x0.2
- B. x0.5
- C. x2.0
- D. x50.0

8. The following events occur during mitosis in a cell:

- I. Chromatids separate
- II. Chromosomes become visible
- III. Chromosomes align at the equator
- IV. Cytoplasm divides (cytokinesis)

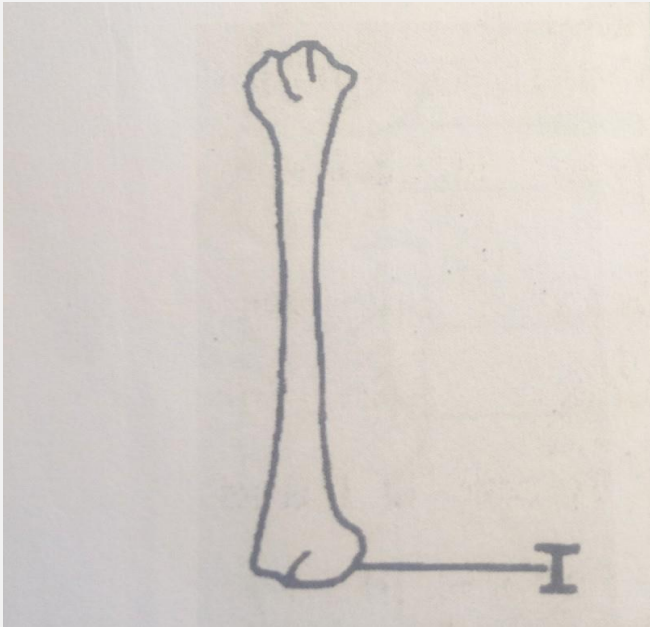
The correct sequence of the events is _____

- A. III, II, IV, I
- B. II, III, I, IV
- C. II, I, III, IV
- D. II, IV, I, III

9. Which of the following statements about asexual reproduction is correct? It _____

- A. always involve one parent but the offspring are genetically different from the parent
- B. may involve two parent but the offspring is always identical to one parent
- C. always involves one parent and the offspring are genetically identical to the parent
- D. involves two parents but the offspring are not genetically identical to any of the parents

The diagram below is an illustration of the mammalian bone. Use it to answer questions 10 and 11.



10. The bone illustrated above is the _____

- A. femur
- B. humerus
- C. radius
- D. ulna

11. The function of the part labelled I is to _____

- A. fit into the glenoid cavity of the scapula
- B. fit into the acetabulum of the pelvic girdle
- C. support the lower arm
- D. prevent the arm from bending backwards

12. Which of the following is not a function of the mammalian skin?

- A. regulation of body temperature
- B. reception of external stimuli
- C. excretion
- D. gaseous exchange

13. The legs of an accident victim with a fractured vertebra column and injured spinal cord could not be raised because _____

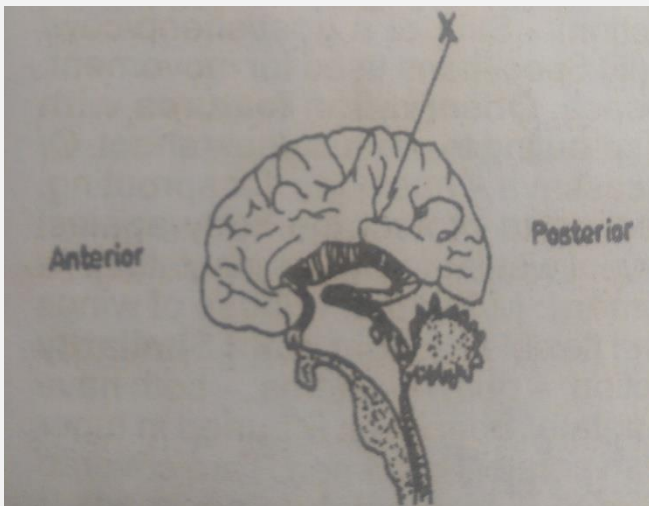
- A. impulses from receptors in the legs cannot travel to the brain
- B. impulses from the brain cannot travel to the legs
- C. chemical substances will be released at synapses in the central nervous system
- D. reflex actions cannot take place in the legs

14. Which of the following conditions in flowering plants enhances self-pollination?

- A. cleistogamy
- B. heterostyly

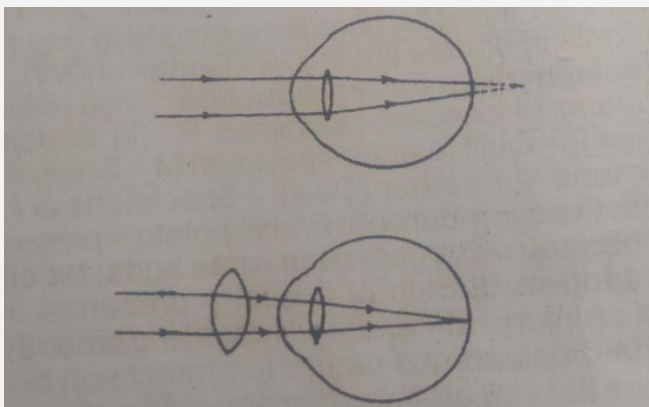
- C. protandry
- D. protogyny

15. The diagram below illustrates the left side of the human cerebrum. The part labelled X controls _____



- A. general memory
- B. speech
- C. sight
- D. respiratory functions

Use the diagram below to answer question 16 only.



16. The diagram above is an illustration of _____

- A. normal sight
- B. short-sightedness
- C. correction of long-sightedness
- D. correction of short-sightedness

17. The inability to make proper balance of the body in humans may be due to the defect in the _____

- A. cochlea
- B. Eustachian tube
- C. semi-circular canals
- D. oval window

18. The following substances pass into the blood of the foetus from the mother's blood via the placenta **except** _____

- A. carbon dioxide
- B. glucose
- C. viruses
- D. antibodies

19. An inferior ovary of a flower is situated _____

- A. below the floral parts
- B. above the floral parts
- C. at the same level with all the floral parts
- D. at the centre of the floral parts

20. Older parts of plants' roots do not normally absorb water because _____

- A. they lack xylem
- B. they have small surface area
- C. the phloem is dead
- D. they lack root hairs

21. The amount of starch in a germinating seed decreases because the starch is used up _____

- A. for respiration and building up of cells
- B. to build cellulose cell walls
- C. to develop meristemic tissues
- D. for the production of enzymes

22. The purpose of treating poor soils with lime is to increase the quantity of _____

- A. nitrogen
- B. phosphorous
- C. calcium
- D. sulphur

23. A meal consisting of yam and a lot of vegetables is not balanced because it does not contain _____

- A. carbohydrates
- B. proteins
- C. vitamins
- D. minerals

24. In a Biuret test, some protein was mixed with sodium hydroxide solution. Which of the following chemicals should be added to the mixture for a positive result?

- A. mercurous nitrate
- B. copper sulphate
- C. sodium carbonate
- D. silver nitrate

25. A characteristic feature of plant parasite is _____

- A. possession of holdfast
- B. possession of rhizoids
- C. development of hanging roots
- D. development of haustoria

26. The part of a leguminous plants where bacteria like Azotobacter can be found is _____

- A. at the nodes of the stem
- B. at the internodes
- C. in the root nodules
- D. in the spongy mesophyll

27. The following adaptations are associated with the flight of birds **except** _____

- A. reduced body weight
- B. streamlined shape
- C. presence of powerful muscles
- D. clawed digits

28. The following habitats can be found in West Africa **except** _____

- A. mangrove swamp
- B. sahel savanna
- C. savanna grassland
- D. temperate grassland

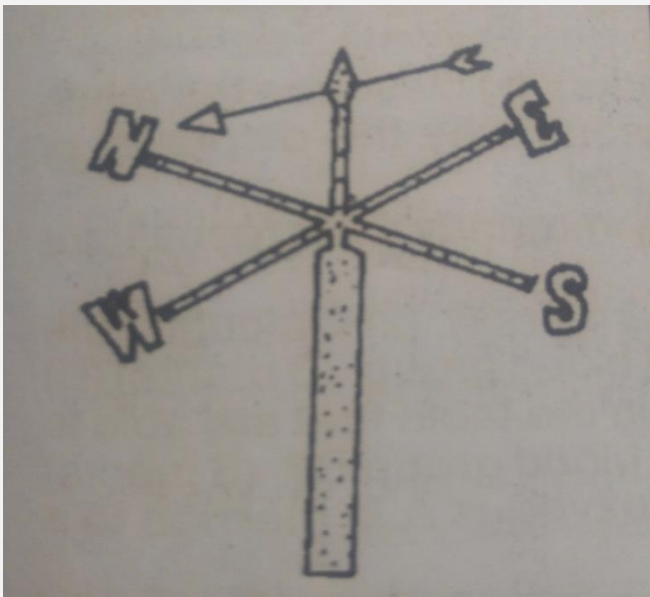
29. The difference between a community and a population is _____

- A. a community is made up of organisms of the same species while a population is made up of organisms of different species
- B. a community is made up of populations of living organisms while a population is made up of organisms of the same species
- C. an ecological niche does not exist in the community but it does in a population
- D. a community attracts competition but a population does not

30. Which of the following statements about the circulation of water in nature is not correct? Water _____

- A. constantly evaporates from seas, rivers, lakes and soil
- B. vapour rises, cools, condenses and precipitates as rain and dew
- C. removed from oceans is permanently lost
- D. is lost in plants by transpiration and decay

The diagram below illustrates an ecological instrument. Use it to answer questions 31-32.



- 31.** The instrument is _____
- A. an anemometer
 - B. a hygrometer
 - C. a barometer
 - D. a wind vane

- 32.** The instrument is used to measure the _____
- A. direction of wind
 - B. speed of wind
 - C. air pressure in a habitat
 - D. turbidity of water

- 33.** The following organisms are consumers **except** _____
- A. earthworm
 - B. spirogyra
 - C. bacteria
 - D. rhizopus

Use the substances listed below to answer questions 34 and 35.

- I. Fertilizer*
- II. Insecticides*
- III. Sewage*
- IV. Crude oil*
- V. Sulphur dioxide*

- 34.** The atmosphere can be polluted by _____

- A. I only
- B. III only
- C. IV only
- D. II and V only

35. Which of the substances constitute domestic waste?

- A. I only
- B. III only
- C. IV only
- D. II and V only

36. The table below shows the oxygen level, number of green plants and fishes in rivers flowing through four towns. Which of the towns is likely to be discharging untreated sewage in the river?

| Town | Oxygen level | Green plants | Fish |
|------|--------------|--------------|------|
| A. | High | Few | Many |
| B. | Low | Many | Many |
| C. | High | Few | Few |
| D. | Low | Many | Few |

37. Which of the following natural resources is non-renewable?

- A. water
- B. coal
- C. forest
- D. air

38. Which of the following statements is not a reason for banning bush burning? It _____

- A. allows for quick regrowth of grasses
- B. kills soil microorganisms
- C. leaves the soil bare of vegetation
- D. burns off organic soil nutrients

39. Which of the statements below explains why fertilizers are added to soil?

- A. increasing the humus content of the soil
- B. improving the water-retaining property of the soil
- C. increasing the nutrient level of the soil
- D. preventing soil erosion

40. Characteristics that exhibit continuous variation are genetically controlled by _____

- A. a single gene
- B. recessive genes
- C. epistatic interaction
- D. multiple genes

41. Differences in characteristics that exist among individuals of the same species is referred to as _____

- A. genetics
- B. dominance
- C. hybrid
- D. variation

42. Which of the following traits is not a morphological variation in human?

- A. ability to taste PTC
- B. colour
- C. fingerprints
- D. size

43. Which of the following statements about chromosomes is correct?

- A. all the chromosomes of a species are the same in shape
- B. the number present in a species is constant
- C. they are neatly arranged in cytoplasm
- D. they bear ribosomes in their outer membrane

44. A small stem from a Hibiscus plant was placed in a nutrient medium, and it developed into a plant. The new plant was reproduced _____

- A. asexually with a different genotype from the parent plant
- B. sexually with a different genotype from the parent plant
- C. asexually with the same genotype as the parent plant
- D. sexually with the same genotype as the parent plant

45. The F1 generation of a cross between a red cock and white hen were all red because the gene for the _____

- A. white colour did not segregate
- B. red colour was dominant
- C. white colour was dominant
- D. red colour was recessive

46. Which of the following diseases can be inherited?

- A. pneumonia
- B. AIDS
- C. sickle cell anaemia
- D. goitre

47. In dihybrid inheritance, Mendel considered _____

- A. a pair of contrasting characters
- B. two pairs of contrasting characters
- C. three pairs of contrasting characters
- D. four pairs of contrasting characters

48. The main reason of nuptial flight in termites is to _____

- A. escape unfavourable conditions
- B. search for food
- C. form new colonies
- D. communicate with one another

49. Which of the following organism is not a social insect?

- A. termites
- B. ants
- C. grasshoppers
- D. bees

50. Lamarck's theory of evolution is based on the fact that _____

- A. organisms acquire genes from their parents
- B. organisms pass on acquired characters to their offspring
- C. characteristics of organisms are determined by the creator
- D. characteristics of organisms are not the sum of their parents' characters

WAEC BIOLOGY OBJECTIVE QUESTIONS (PT.6)

1. Which of the 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 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

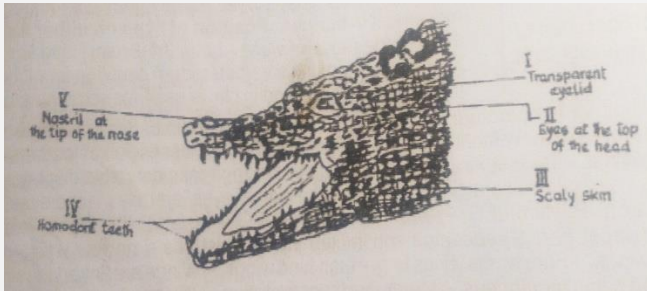
5. Which of the following statement about protoplasm of a cell is not correct? It _____

- A. is a gelatinous mass
- B. consist of cytoplasm and nucleus
- C. is the liquid part of the nucleus
- D. contain 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 7-8.



7. Which of the labelled part enables 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

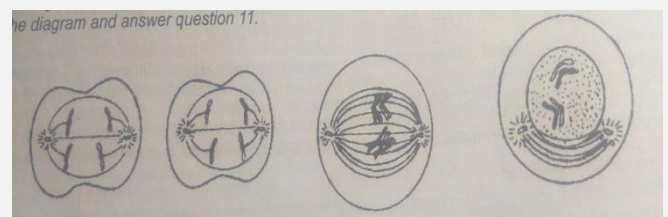
9. Water and salt are both lost from the human body in _____

- A. breath and sweat
- B. breath and urine
- C. breath, urine and sweat
- D. sweat and urine

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 cell division. Study the diagram and answer question 11.



11. In which of the following cells is the division likely to take place?

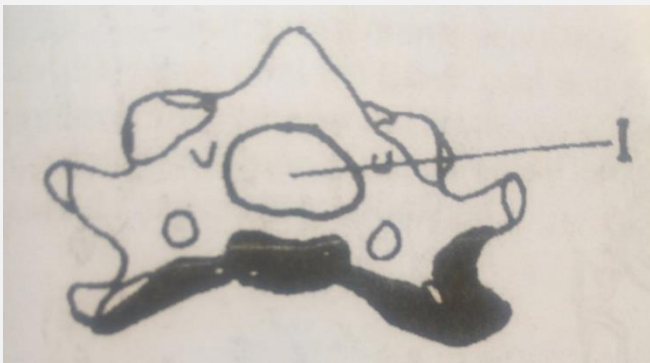
- A. sperm cell
- B. blood cell

- 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

14. The function of the part I is to _____

- A. provide support to the spinal cord
- B. provide surface for attachment of the muscle
- C. carry the spinal cord
- D. articulate with adjacent vertebrae

15. Blood pressure is higher in the arteries as a result of _____

- A. stress
- B. contraction and relaxation
- C. blockage in the arteries
- D. pressure of valves

16. A farmer who wants to keep seeds for three years before planting and wants to prevent them from sprouting out uses _____

- A. auxins

- B. gibberellins
- C. abscisin
- D. cytokinin

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 _____

- A. nose by extension
- B. olfactory lobes in the brain
- C. passages from the nose to the brain
- D. part of the skull near the nose

18. Ability of the human eye to focus images accurately on the retina is called _____

- A. astigmatism
- B. myopia
- C. adjustment
- D. accommodation

19. Which of the following characteristic feature is not associated with monocotyledonous plants?

- A. well differentiated sepals and petals
- B. presence of fibrous root system
- C. presence of narrow leaves
- D. floral parts are multiples of three

20. The main difference between a seed and a fruit is that a fruit _____

- A. is large while a seed is small
- B. has two scars while a seed has one
- C. is pigmented while a seed is not
- D. can be dispersed by animals while a seed cannot

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 non-reducing sugar.

I. added Benedict's solution to the sugar solution

II. added diluted 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 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 is advised not to eat fats and oils because _____

- A. bile digests fats and oils
- 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

27. A community reaches a climax when _____

- A. only pioneer organisms are present
- B. new habitats are constantly being formed
- C. there is an introduction of new plants and animals in the community
- D. the composition and size of a community remains constant over a long period

28. Which of the following components make up an ecosystem?

- A. decomposers, animals and non-living factors
- B. living and non-living factors
- C. plants and non-living factors

- D. plants, decomposers and non-living factors

29. The major problem experienced by organisms living in small water bodies is _____

- A. drying up
- B. oxygen deficiency
- C. scarcity of food
- D. wave action

30. The capillarity of a soil refers to _____

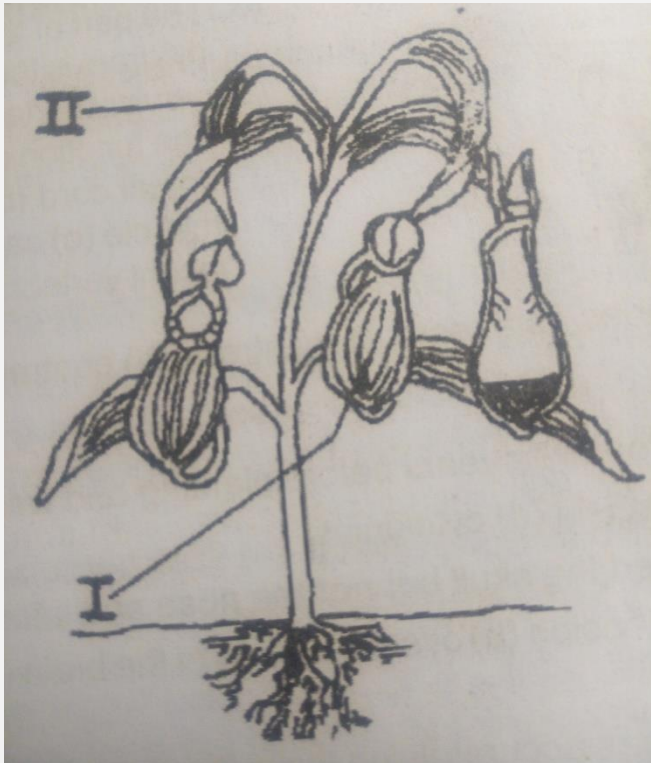
- A. the particle size of the soil
- B. how easily water passes through the soil
- C. how well water rises up in the soil
- D. proportion of water a soil holds

31. An organism at the start of a food chain which provides the total input of energy into an ecosystem is the _____

- A. sun
- B. producer

- C. consumer
- D. decomposer

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. waterlogged
- C. exposed
- D. nitrogen deficient

35. Which of the following organisms is an endo-parasite?

- A. tapeworm
- B. flea
- C. tick
- D. aphid

36. Oil applied to the surface of water kills the larvae of mosquitoes through _____

- A. dehydration

- B. poisoning
- C. starvation
- D. suffocation

37. Which of the following natural resources is most readily available to all organisms?

- A. oil
- B. water
- C. air
- D. food

38. Which of the following resources is non-renewable?

- A. forest reserve
- B. mineral deposit
- C. water
- D. wildlife

39. Soil erosion could be prevented by _____

- A. flooding a farmland
- B. cover-cropping
- C. deforestation
- D. leaving the soil bare

40. Which of the following statements about human blood group is not true?

- A. A is dominant over B
- B. O is recessive
- C. B is dominant over O
- D. A and B are co-dominant

41. Which of the following traits is not inheritable? Ability to _____

- A. taste PTC
- B. roll the tongue
- C. move the ear
- D. roll the eyeball

42. A woman with blood group A gives birth to a child with blood group O. Which of the following blood group cannot belong to the father?

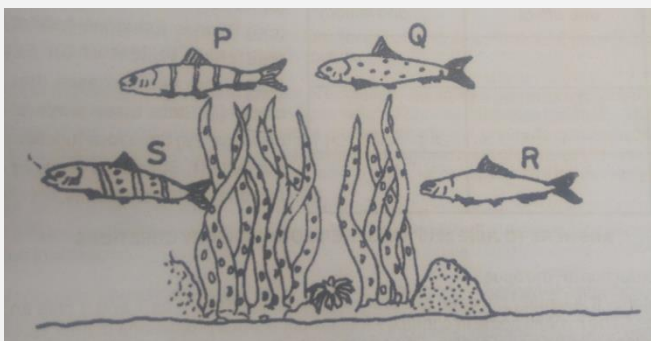
- A. A
- B. B
- C. AB
- D. O

47. Which of the 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-chromosome

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 increase most in number if a predatory fish is introduced in the river?

- A. P
- B. Q
- C. R
- D. S

49. Which of the varieties is most likely to outlive the other?

- 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

WAEC BIOLOGY OBJECTIVE QUESTIONS (PT.5)

1. An example of an organism that exists as a colony is _____

- A. Spirogyra
- B. Paramecium
- C. Euglena
- D. Volvox

2. Gymnosperms bear naked seeds because they lack _____

- A. ovary
- B. colourful flowers
- C. pollen grains
- D. stigma

3. DNA formation is associated with _____

- A. golgi bodies
- B. lysosomes
- C. mitochondria
- D. nucleus

4. Which of the following organs is responsible for the production of insulin?

- A. spleen
- B. adrenal gland
- C. thyroid gland
- D. pancreas

5. Which of the following actions is not a voluntary action?

- A. stealing
- B. fighting
- C. cheating
- D. sneezing

6. Hydra is considered to be at a tissue level of organization of life because it _____

- A. has numerous cells that perform different functions
- B. has developed organs and systems
- C. has poorly developed nervous system
- D. reproduces by budding

7. Which of the following parts of the ear does not contain endolymph?

- A. Semi-circular canals
- B. Utriculus
- C. Tympanum
- D. Sacculus

8. The function of the villi in the alimentary canal is to _____

- A. secrete gastric juice
- B. curdle milk
- C. emulsify fat
- D. increase the surface area for absorption

9. Flaccidity in plants is associated with _____

- A. cessation of photosynthesis
- B. wilting
- C. turgidity
- D. discolouration of leaves

10. The direction of wind is determined by _____

- A. an anemometer
- B. a secchi disc
- C. a wind vane
- D. a barometer

11. In artificial vegetation, individuals without desirable traits may be prevented from mating by _____

- A. outbreeding
- B. sterilization
- C. inbreeding
- D. genetic engineering

12. In a family of eight, all the children are girls. Which of the following reasons correctly explains this?

- A. the woman cannot produce male children
- B. the man has low sperm count
- C. the Y component of the man's sex chromosome was always involved
- D. the X component of the man's sex chromosome was always involved

13. Which of the following is correct about the structure of a chromosome? A chromosome consist of _____

- A. two chromatids joined at the centromere
- B. two chromatids joined at the spindle
- C. two chromatids threads joined at the centrioles
- D. thread-like structures not joined together

14. Mr. Andrew, his wife and child belong to blood group A, B and O respectively. The genotypes of both parents are _____

- A. $I^A I^O$ and $I^B I^B$
- B. $I^A I^A$ and $I^B I^B$
- C. $I^A I^B$ and $I^A I^O$
- D. $I^A I^O$ and $I^B I^O$

15. What could be the phenotypic ratio of the offspring of a cross between a heterozygous dominant parent and a double recessive parent?

- A. 1:2:1
- B. 1:1
- C. 3:1
- D. 2:1

16. The percentage probability that a normal male married to a carrier woman would have a haemophilic male child is _____

- A. 35%
- B. 50%
- C. 75%
- D. 100%

17. The importance of courtship in animals include the following **except** _____

- A. ensuring that the female chooses the right male species
- B. arousing both male and female partners
- C. protection of territory
- D. to coincide with the ovulation period and ensure fertilization

18. In evolution, analogous structures are significant because they show _____

- A. physiological diversity
- B. functional diversity
- C. genetic diversity

D. structural diversity

19. Which of the following statements reflects the mechanism of natural selection?

- A. There are variations within every species
- B. Individuals of every species are genetically identical
- C. No organism in a species dies before sexual maturity
- D. Organisms with selective advantage are less likely to survive

20. Which of the following animals exhibit territoriality?

- A. Rabbit
- B. Earthworm
- C. Lizard
- D. Toad

21. Acquired characters are _____

- A. received from parents
- B. passed to offspring
- C. caused by the environment

D. caused by mutation

22. Differences in the characteristics observed between individual of the same species is known as _____

- A. trait
- B. phenotype
- C. mutation
- D. variation

23. Which of the following statements best describes protein synthesis?

- A. DNA is directly involved in translation
- B. translocation of the chromosomes exposes a new codon for base pairing and amino acid
- C. each tRNA with a particular anticodon always carries a different protein in the process
- D. one amino acid is always carried by more than one tRNA

24. If a person has two alleles of the sickle cell anaemia gene, the person _____

- A. is a heterozygous carrier of the disease
- B. is immune to the disease and cannot pass it on an offspring
- C. has the disease
- D. is probably an Asian ancestry

25. What is the probability of a man of blood group AB married to a woman of blood group O producing a child of blood group O?

- A. 0%
- B. 25%
- C. 50%
- D. 75%

26. A man with blood group $I^{A}I^{A}$ is married to a woman of $I^{A}I^{O}$. The blood group of their son is likely to be _____

- A. A
- B. O

C. B

D. AB

27. Natural selection is a consequence of _____

- A. distribution of organism
- B. adverse conditions
- C. variation in organisms
- D. inbreeding

28. Which of the following components of Lamarck's theory of evolution is considered faulty?

- A. individuals of the same species growing under different environmental conditions differ from each other
- B. use of certain organs result in the development of those parts
- C. unused organs degenerate
- D. changes that results in individuals of the same species are transmitted to offspring

29. A vestigial structure in humans is _____

- A. earlobe
- B. toe bone
- C. tail bone
- D. spleen

30. Adenine pairs with thymine because _____

- A. the two occur in the same nucleic acid
- B. one is a strong base and the other is a weak base
- C. two purine bases easily pair up
- D. one is a purine base and the other is a pyrimidine

31. Which of the following statements is true about ABO blood group system?

- A. antigens are located on the surface of white blood cells
- B. antibodies are located in the blood plasma
- C. antibodies are located on the surface of red blood cells
- D. antigens are located in the plasma

32. The classes of fingerprint in man are _____

- A. whorl, alternate, opposite and compound
- B. compound, loop, whorl and alternate
- C. whorl, arch, compound and loop
- D. arch, simple, compound and opposite

33. Which of the following diseases is transmittable through genes?

- A. HIV/AIDS
- B. sickle cell anaemia
- C. diabetes
- D. presbyopia

34. Two plants with red flowers were back crossed. Which of the following results indicate that the plants are heterozygous red flowers, where red flowers are dominant?

- A. 75% red and 25% white

- B. 50% red and 50% white
- C. 100% white
- D. 100% red

35. In the structure of DNA, which of the following statement is true?

- A. a double helix are held together by covalent bond
- B. nucleotide is made up of ribose, phosphate and organic nitrogen compound
- C. guanine is the opposite of cytosine
- D. adenine is the opposite of cytosine

36. In a case of complete dominance, what is the phenotypic ratio of the cross Bb x Bb; where B = black and b = white?

- A. 1 black : 1 grey : 2 whites
- B. 1 black : 3 whites
- C. 1 black : 2 blues : 1 white
- D. 3 blacks : 1 white

37. Two yellow-flowered hybrid plants each carrying a recessive factor for flowers with green colour were crossed. Which of the following ratios show the correct proportion of offspring that have green flowers?

- A. 2 in 2
- B. 1 in 3
- C. 1 in 4
- D. 1 in 5

38. What name is given to a sudden change in gene or chromosome?

- A. allele
- B. genotype
- C. mutation
- D. phenotype

39. Bees are of great importance to farmers because they _____

- A. provide him with honey
- B. pollinate flowers
- C. sting crop pests to death

D. destroy flowers by sucking nectar from them

40. Which of the following sequences is the correct evolutionary trend in plant?

A. algae → liverworts → mosses → ferns

B. liverworts → mosses → ferns → algae

C. mosses → algae → ferns → liverworts

D. ferns → liverworts → mosses → algae

41. The genotypic ratio of the offspring of a hybrid is 1:2:1. Which of the following laws illustrates this ratio?

A. use and disuse

B. dominance

C. segregation

D. linkage

42. A gene that is only located on the X-chromosome is said to be _____

A. expressed in females only

B. defective

C. sex-linked

D. expressed in males only

43. If a boy has blood type O and his mother has blood type A, what is the genotype of his father?

A. BB

B. AA

C. AO

D. AB

44. A man who suffers from haemophilia marries a woman who is a carrier. What percentage of their children are likely to be haemophilic?

A. 25%

B. 50%

C. 75%

D. 100%

45. Which of the following traits may be considered in marriage counselling?

- A. height
- B. fingerprint
- C. rhesus factor
- D. colour of skin

46. Which of the following structures is only formed during cell division in animals?

- A. cell membrane
- B. cytoplasm
- C. centrosome
- D. ribosome

47. The function of the drone in a colony of bees is to _____

- A. clean the cell
- B. mate with the queen
- C. protect the colony
- D. lay eggs

48. Which of the following features is used by the chameleon to escape predation?

- A. fearsome appearance
- B. coiling tail
- C. offensive smell

- D. adaptive colouration

49. A scientist who was involved in the evolutionary theory was _____

- A. Lamarck
- B. Mendel
- C. Morgan
- D. Pasteur

50. Darwin noticed that organisms in similar habitat across the world looked alike. This illustrates _____

- A. convergent evolution
- B. adaptive radiation
- C. co-evolution
- D. descent with modification

~~DISCLAIMER~~

These are **not** WAEC expo questions for this year, but past questions of previous years.

Study these past questions, know their **correct answers** and how each answer was gotten to better prepare for your WAEC Biology exam.

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