BIOLOGY
JAMB
Past
Questions
And
Answers

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Email: aniebaba06@gmail.com

Biology 2000

1. Root hairs are developed from the …
A. root apex B. epidermis of roots
C. vascular bundles D. endodermis
E. pericycle

Use Fig. 1 to answer questions 2-4
Fig 1

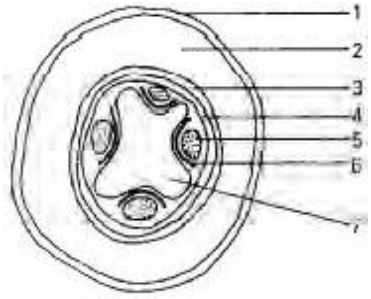


Fig 1 represents a cross-section of a part of a dicot plant.

2. Which of the following features can be used to identify Fig 1?
A. Position of 7 B. Its circular nature C. Number of 5
D. Presence of 3 E. Width of 2.

3. The main function of 6 is to
A. separate 5 from 7 B. produce more of 5 and 7.
C. produce cork D. translocatewater and mineral salt
E. conduct carbon dioxide to the other parts.

4. The main function of 4 is to
A. surround the inner tissues B. produce cork
C. produce root hairs D. produce lateral roots
E. produce more of 3.

5. In a dicot leaf, guard cells differ from other epidermal cells because they
A. have no definite shape B. lack nuclei
C. are smaller D. contain chloroplasts E. lack vacuole.

6. Which of the following structures is <u>NOT</u> found in the femaleagama lizard?
A. Pre-anal pads B. Eardrum C. Gular fold
D. Nasal scale E. Nuchal crest.

7. Herbs differ from shrubs because they
A. do not produce fruits B. are useful to herbalists
C. do not become woody D. are onlyannuals
E. are only perennials.

8. If an isolated living cell is left in distilled water for two hours, it is likely to
A. lose some of its water to the surrounding water
B. lose all of its water to the surrounding water
C. reproduce by binary fission D. become more turgid.
E. die due to excess water.

9. If an organic compound has its Hydrogen: Oxygen ratio as 2:1, it is likely to be

A. a protein B. a carbohydrate, C. a fat D. a fatty acid and glycerol E. an amino acid.

10. Which of the following elements are necessary for the formation ofchlorophyll in a plant?
A. Magnesium and iron B. Calcium and potassium
C. Calcium and sulphur D. Potassium and sulphur
E. Phosphorus and potassium.

11. Which of the following statements is NOT true of mammalian erythrocytes?
A. They have haemoglobin B. Theyappear yellow when looked at singly C. They are disc-shaped
D. The cells are more numerous than leucocytes
E. Theyhave nuclei at maturity.

12. In woody plants, gases and water vapour are transported across the stems by the
A. xylem fibres B. medullary fibres C. medullaryrays
D. phloemfibres E. phloem parenchyma.

13. Which of the following substances is NOT found in urine?
A. Water B. Sodium chloride C. Nitrogenous compounds
D. Calcium chloride E. Nitrogenous salts.

14. The kidneys of all vertebrates act as osmo regulators. This means that they
A. keep the composition of the plasma constant
B. regulate osmotic processes C. Control the volume of blood entering the kidneys D. decrease the osmotic pressure of blood E. increase the osmotic pressure of blood.

15. The movement of part of a plant in response to external stimulus of no particular direction is
A. taxism B. tropism C haptotropic movement D nastic movement E. phototropism

16. The part of the mammalian brain responsible for maintaining balance is the
A. medulla oblongata B. olfactory lobe
C. cerebellum, D. cerebrum E. frontal lobe.

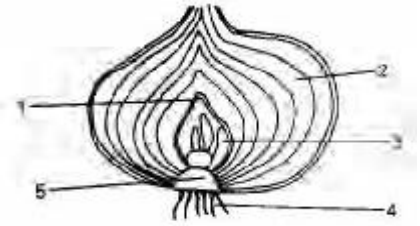
17. 

Fig vertical section of onion bulb.

Which of the labelled parts in Fig 2 will develop into a new bulb? A. 1 B. 4 C. 2 D. 3 E. 5.

18. In the onion bulb, food is stored in the
A. stem B. lateral buds C. cotyledons D. outer scale leaves E. leaf bases.

19. Groundnut is not really a 'nut' in the biological sense because
A. it is harvested from inside the ground B. its pericarp is not hard and tough. C. the fruit is succulent
E. it is an achene.

20. What type of fruit is formed from a single flower having several free carpels?
A. multiplefruit B. Simplefruit C. Aggregate fruit
D. Dehiscent fruit E. Indehiscent fruit.

21. A 28g soil sample was heated to a constant weight of 24g. When further heated to red hot and cooled, it weighed 18g. What is the percentage of hurmus in the soil?
A. 22.2 B. 55.6 C. 75.0 D. 25.9 E. 35.7.

22. Which of the following diseases is NOT caused by a virus?
A. Rinderpest B. Maize rust C. Newcastle disease
D. Swine fever E. Cassava mosaic disease.

23. A centipede differs from a millipede by its
A. colour B. numerous abdominal segments
C. paired legs on each abdominal segment
D. poison claws E. cylindrical body.

24. An organism having one pair of identical genes is
A. a heterozygote B. a hybrid C. an allelomorph
D. a homozygote E. a diploid

25. Plants which can survive in places where the water supply is limited are
A .bryophytes B.mesophytes C. xerophytes D.hydrophytes E. pteridophytes
.

26. Banana, plantain and pineapple can be grouped together because they
A. produce small seeds B. are multiple fruits
C. produce suckers D. haverunners E. have bulbils.

27. One disease NOT caused directly by bacteria is A.malaria B. tuberculosis C. pneumonia D. tetanus
E. cholera.

28. In what order do the following structures develop during the metamorphosis of thetoad? 1. External gills 2. Internal gills 3. Forelimbs 4. Hindlimbs 5. Mouth.
A. 1 2 3 4 5 B.1 5 2 4 3 C. 1 3 4 5 D. 5 3 4 1 2
E. 54 32 1.

29. The dental formular i 3/3: c 1/1: pm4/4: m2/3 = 42 represents that of a
A. rabbit B. full grown man C. young child
D. dog E. sheep.

30. Which of the following statements is NOT true of insectivorous plants?
A. They obtain part of their food by trapping and feeding on insects B. Theyattract insects simply because of pollination. C. They can grow in soils poor in nitrogenous salts. D. They can supplement the nitrogen supply by feeding on insects E. Examples include butterworts, sundews and pitcher plants.

31. Which of these worms is beneficial to man?
A. Hookworm B. Tapeworm C. Roundworm
D. Earthworm E. Guniea worm.

32. Starting from the skull end, the vertebrae are arranged in the following order:
A. axis, atlas, cervical, thoracic and limbar
B. atlas, cervical, axis, thoracic and lumbar
C. atlas, axis, thoracic, cervical and lumbar
D. atlas, axis, cervical, thoracic and lumbar
E. atlas, thoracic, cervical axis and lumbar.

33. Which of the following diseases could be exclusively associated with a river basin?
A. Malaria B. Syphilis C. Onchocerciasis
D. Cholera E. Poliomyelitis.

34. Which of the following represents the evolutionary sequence in these plants?
1. Flowering plants, 2. Ferns, 3. Mosses, 4. Algae, 5. Conifers.
A. 2→1→4→3→5 B. 5→4→3→2→1 C. 2→4→5→1→3
D. 3→2→4→5→1 E. 4→3→2→5→1

35. Which of the following will NOT allow osmosis to take place?
A. pig's bladder B. Cellophane C. Parchment paper
D. Transparent polythene E. Cow's bladder.

36. Which of the following statements on the mammalian circulatory system is Not true?
A. Blood in the pulmonary artery is richer in oxygen content than blood in the pulmonary vein
B. The blood in the hepatic portal vein is the richest in food substances. C. Blood flow is controlled by valves in the veins D. Arteries are generally thicker and larger than veins. E. Fibrin helpsin the formation of blood clot.

37. In a positive phototropic response of a coleoptile, the region of greatest curvature is brought about by the
A. movement of auxins away from theregion of curvature, B. even distribution ofauxins in all parts of the coleoptile, C. inhibition of growth byauxins in the region of smaller curvature
D. concetrationn of auxins in the region of curvature E. absence of auxins in the coleptile.

38. The tuber of cassava is NOT a stem tuber because it
A. is distended with food reserve
B. has an aerial shoot portion
C. has other structures that could be called roots D. lacks axillarybuds
E. has a bark over its stored food.

39. The function of the ossicles (maleus, incus and stapes) in the mammalian ear is the
A. transmission of vibrations B. regulation of pressures C. support ofthe inner ear
D. maintenance of balance during motion
E. secretion ofoil.

40. Which of the following instruments is used for determining turbidity of water?
A. Thermometer B. Secchi Disc C. Rain gauge
D. Hygrometer E. Wind vane.

41. Which of the following is NOT a characteristic of monocot plants?

A. occurrence of secondary thickening B. Parallel venation C. Scattered vascular bundles
D. Floral parts arranged in threes, E. Periath is usually insignifdicant

42. Which sequence represnts the correct order of organism in a food chain? 1. Toad, 2.Mucuna, 3. Grasshopper, 4.Snake, 5.Hawk.
A. 5→4→1→3→2 B. 1→2→3→4→5
C. 2→1→3→4 5 D. 2→3→1→5→4
E. 2→3→1→4 5

43. In Rhizopus, carbonhydrate is stored in the form of
A. glucose B. paramylon C. glycogen
D. starch E. oil

44. Which of the following statements about the rate of transpiration is INCORRECT? It is
A. dependent on temperature B. affected by changes in light intensity C. unaffected by humidity
D. dependent on air movement E. affected by availability of water.

45. 'Jointed skeleton' is absent in the
A. cockroach B. spider C. millipede D. snail
E. dragon fly.

46. Which of the following statements about the definition of man is Incorrect? Man has
A. more molars than incisors B. no diastema
C. the same number of teeth on upper and lower jaws
D. a total of thirty-two teeth E. a total of six molars.

47. When a Spirogyra cell is immersed in a salt solution more concentrated than its cell sap, it
A. remains unchanged B. takes up water and burst
C. absorbs a little water D. loses water and shrivel
E. becomes turgid.

48. Urea is produced in the
A. liver, B. Ladder, C. spleen, D. kidneys. E. gall bladder

49. What is the genetic ration of the F_2 generation if members of F generation are allowed to self-pollinate?
A. 1tall: 3short B. 3 tall:1 short C. 1 tall: 1 short
D. 4 shorts: 0 tall E. 4 tall:0 short

50. The path taken by glucose from the ileum to the heart is
A. ileum→hepatic portal vein→hepatic artery→vena cava→heart. B. ileum→hepatic portal →hepatic artery→venacave→heart.
C. ileum→hepatic portalvein→vena cava→heart
D. ileum→hepatic vein→vena cava→heart.
E. ileum→ hepatic portal vein→hepatic vein →→vena cava heart.

Answers

1. B, 2. D, 3. B, 4. A, 5. D, 6. A, 7. C, 8. D, 9. B, 10. A, 11. E, 12. C, 13. D, 14. A, 15. D, 16. C, 17. E, 18. E, 19. B, 20. C, 21. B, 22. B, 23. D, 24. D, 25. C, 26. C, 27. A, 28. B, 29. D, 30. B, 31. D, 32. D, 33. C, 34. E, 35. D, 36. A, 37. D, 38. D, 39. A, 40. B, 41. A, 42. E, 43. D, 44. C, 45. D, 46. E, 47. D, 48. A, 49. B, 50. E

1. The mouth part of the housefly are adapted for
A. lapping and sponging. B. sucking and chewing.
C. piercing and sucking. D. chewing and lapping.
E. biting and chewing.

2. The male toad differs from the female by having
A. vocal sacs. B. shorter hind limbs.
C. longer fore limbs. D. bulging eyes.
E. nictating membrane.

3. Mosses, liverworts and ferns can be grouped together because they
A. areall equatic plants. B. all growin deserts.
C. are seedless plants. D. have undifferentiated plant bodies. E. all produce colourless flowers.

4. Spirogyra and Mucor can be grouped together as Thallophyta because.
A. theyare unicellular organism B. their spores could be dispersed by wind C. they are capable of living independent lives D. they reproduce sexually only E. their bodies are made up of thallus and filaments alternatively.

5. Which of the following invertebrates does NOT possess antennae?
A. Centipede B. Crustacean C.Millipede
D. Insect E. Spider

6. Which of the following is INCORRECT? The prothallus of a fern
A. is a flattened heart-shaped structure.
B. is green because its cells contain chloroplasts
C. is the dominant plant D. bears the sexual organs
E. is attached to the ground by numerous rhizoids.

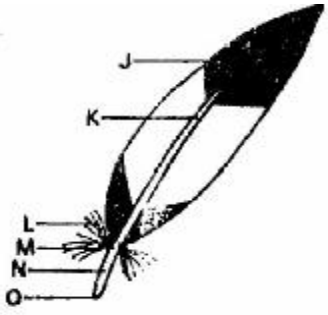
7. Which of the following cell constituents is NOT common in both plants and animals?
A. Mitochondria B. Chloroplasts
C. RibosomesD. Golgi apparatus
E. Vacoules.

8. The character-producing factors in living organisms are
A. chromomeres B. alleles C. chromatids
D. chromosomes E. genes.

9. A mixture of mercurous and mercuric nitrates is added to a food substance. A white precipitate is formed which on gentle heating turns red. The food substance is
A. protein B. oil C. Carbohydrate
D. Fat E.Fatty acid.

10. Themammalian organ through which nourishment and oxygen diffuse into a developing embryo is called
A. amnion B. chorion C. umbilical cord
D. oviduct E. placenta

11. Fig 1 represents a quill feather. The structure labelled "M" is the
A. quill B. rachis C. superior umbilicus
D. inferior umbilicus E. aftershaft



12. Osmosis can be defined as the movement of
A. molecules from solution of high concentration to low concentration B. molecules from solution of low concentration to]high concentration
C.water from solution of high concentration to low concentration D. Water across a semi-permeable membrane from solution of lowconcentration to high concentration
E. water across a semi-permeable membrane from solution of high concentration to low concentration

13. Which of the following statements is NOT true of enzymes? They
A. are proteins B.need cofactors to activate them
C. are sensitive to hydrogen ion concentration
D. are specific in their action
E. can withstand high temperatures.

14. The dorsal and anal fins of fish are used for
A. upward movements B. controlling rolling movements C. downward movements
D. steering E. buoyancy.

15. Exoskeleton is NOT found in the
A. maggot B. mosquito larva C. earthworm
D. caterpillar F. termite

16. Blood clotting is initiated by
A. leucocytes B. platelets C. haemolymph
D. haemoglobin E. erythrocytes

17. Pepsin is a digestive enzyme which breaks
A. cellulose into glucose molecules
B. carbohydrates into simple sugars
C. protein into peptones D. fats into glycerol and fatty acids E. sucrose into glucose and fructose.

18. Anaerobic respiration in yeast produces
A. carbondioxide and ethanol B. carbondioxide and water C. carbondioxide and oxygen
D. carbondioxide and glucose E. ethanol and water

19. Underground stems which grow horizontally through the soil are
A. blubs B. rhizomes C. runners
D. corms E. stolons

20. A man with a normal haemoglobin (AA) marries a woman who has sickle-cell haemoglobin (SS). They have a child who has sickle-cell trait. Which of the following genotypes could be associated with the child's haemoglobin ?
A. AA B. OO C. AO
D. AS E. SS

21. 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. Mercuricnitrate D. Sodium carbonate
E. Ammoniumhydroxide

22. The removal of a man's pancreas by surgical operation can affect only the digestion of
A. starch B. starch, protein and fats
C. oils and fats D. proteins
E. carbohydrate and fats.

23. The parts used by tapeworm to fasten itself to the host's intestine are the
A. neck and suckers B. hooks and suckers
C. rostellum and suckers
D. young proglottis and neck
E. rostellum, hooks and suckers.

Use Fig 2 to answer questions 24 - 25

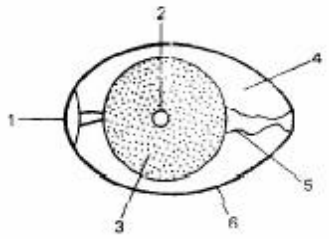


Fig 2. transverse section of a fowl's egg

24. The young chick is formed from
A. 3 B. 3 and 4 C. 1,3 and 5
D. 2 E. 4

25. Which parts provide food for the developing chick?
A. 2 and 3 B. 4 and C. 3 and 4
D. 2 and 5 E. 1 and 2

26. Which of the following types of vertebrate occur in equal numbers in the rabbit, rat and man?
A. Caudal B. Thoracic C. Lumbar
D. Cervical E. Sacral

27. Which of the following statements is NOT true of the piliferous layer of a root? It
A. has a very thin cuticle B. is the outermost layer of the cortex
C. may bear root hairs
D. breaks down as the root ages
E. is replaced by cork in old roots.

28. A flowering plant is monoecious if
A. the androecium is found on one plant
B. the gynoecium is monocarpous
C. it produces essential organs
D. the gynoecium and androecium are on the same plant
E. theflowers areunisexual

29. How many nuclei are found in a pollen tube during fertilization?
A. 2 B. 3 C. 5 D. 6 E. 7

30. Which of the following is NOT a waste product of plants?
A. Tannis B. Oxygen C. Carbondioxide D. Sap E. Alkaloids

31. If an animal is very active and has good muscular control, it is likely to have well-developed
A. olfactory lobes B. cerebral hemispheres
C. optic lobes D. cerebellum E. spinal cord

32. Which of the following adaptations is NOT concerned with the flight of birds?
A. Streamlined shape B. Presence of powerful muscles
C. Reduced body weight D. Broad sternum
E. Webbed feet.

33. The transect method can be used in ecology to show the
A. number of plants and animals in a habitant
B. population of a plant species
C. distribution of organisms along a line
D. heights of trees in a section of a forest
E. number of young plants across a forest.

34. Asexual reproduction does NOT occur in
A. Mucor, Spirogyra and Paramecium
B. Penicillium, Paramecium and Amoeba
C. Mucor, Rhizopus and penicillium
D. Amoeba, spirogyra and Mucor
E. Rhizopus, Ascaris and Amoeba.

35. Fehling's solution will readily change colour from blue to a reddish colour when it is
A. mixed with sugar solution in the cold
B. warmed or heated byitself
C. mixed with reducing sugar in the cold
D. warmed or heated with a complex solution
E. warmed with a solution of reducing sugar.

37. Normally the flow of blood is NEVER from
A. arteryto arterioles B. arterioles to capillaries
C. capillaries to venules D. arterioles to the artery
E. venules to the vein

38. Heat produced in tissue respiration in plants is
A. a chemical from of energy B. the only form of energy
C. the main form ofenergy D. a useful form of energy
E. a waste from of energy.

39. The axial skeleton of a mammal does not include the bones of the
A. skull B. tail C. limbs D. back E. neck.

40. Which of the following sequences represents the process of blood clotting? 1. Fibrin forms a network of threads 2 Red blood cells are caught and a clot is formed
3. Fibrinogen in plasma changes into solube fibrin 4. Blood is exposed to air.
A. 4,3,2,1B. 4,3,1,2 C. 3,1,4,2 D. 1,2,3,4 E. 3,1,2,4.

41. Green plants are important in the ecosystem because they are
A. primary consumers B. producers C. decomposersD. secondary consumers
E. scavengers.

42. An anenometer is an instrument for measuring
A. relative humidity B. altitude C. wind speed
D. turbidity E. salinity.

43. Which of the following is NOT regarded as a pollutant on land or in the air?
A. Noise B. Smoke C. Sulphur dioxide
D. Carbon monoxide E. Nitrogen

44. Which of the following groups of factors is completely abiotic?
A. salinity, tide, plankton, turbidity
B. Temperature, pH, soil insect
C. Wind, altitude, humidity, light
D. Conifers, winds, pH, rainfall
E. Soil, water, bacteria, salinity

45. Which of the following lists of diseases, their causes and transmission is CORRECT?
A. Cholera, virus, severediarrhoea, infected water.
B. Malaria, protozoan, high fever, contact with infected person C. Syphilis, virus, veneral disease, sexual intercourse D. Smallpox, virus, skin with blister, close contact with infected person. E. Sleeping sickness, bacteria, tiredness, headaches and dozing, tsetse fly bite

46. Erosion can be reduced along a slope by
A. ridging across slope B. ridging up slope
C. ridging down slope D. crop rotation
E. bush fallowing system.

47. If a handful of soil is shaken with water and left to settle, the soil particles will settle from light to heavy particles as follows:
A. humus, clay, silt, sand, stones B. humus, silt, clay, sand, stones C. humus, clay silt, stones, sand D. humus, sand, silt, clay, stones
E. clay, humus, silt, sand, stones.

48. Denitrifying bacteria in nature liberate gaseous nitrogen directly from
A. ammonium salts B. soil nitrates
C. thunderstorms D. soil nitrites
E. plant and animal proteins.

49. Leaching is
A. washing away of humus from the soil surface
B. reduction of soil aeration by pressure
C. soil erosion bymeans other than rainfall
D. loss of organic matter due to exposure to direct sunlight E. washing out of chalk and limestone from upper layers of soil by heavy rains

50. The process of soil erosion is usually from
A. rill → sheet→ gully B. gully → rill → sheet
C. sheet → gully → rill D. sheet → rill → gully
E. rill → gully → sheet

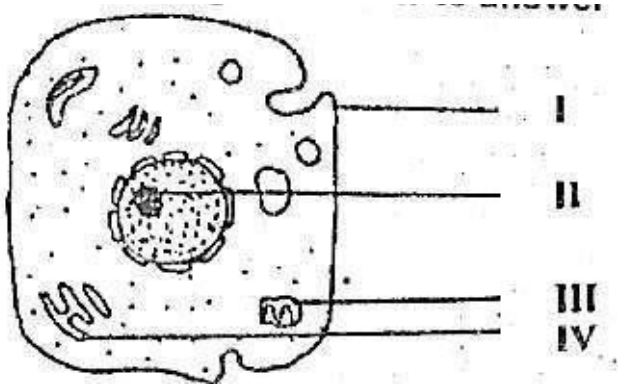
Answers

1. A, 2. A, 3. C, 4. E, 5. E, 6. C, 7. B, 8. E, 9. A, 10. E, 11. B, 12. E, 13. E, 14. B, 15. C, 16. B, 17. C, 18. A, 19. B, 20. D, 21. B, 22. B, 23. B, 24. D, 25. C, 26. D, 27. B, 28. D, 29. B, 30. D, 31. D, 32. E, 33. C, 34. E, 35. E, 37. D, 38. E, 39. C, 40. B, 41. B, 42. C, 43. A, 44. C, 45. D, 46. A, 47. A, 48. B, 49. E, 50. D

UTME 2002 BIOLOGY QUESTIONS

1. Which Question Paper Type of Biology as indicated above is given to you?
A. Type Green
B. Type Purple
C. Type Red
D. Type Yellow

Use the diagram below to answer question 2 and 3



2. The organelle responsible for heredity is labelled
A. I
B. II
C. III
D. I

3. The part labelled IV is the
A. mitochondrion
B. cell wall
C. endoplasmic reticulum
D. nucleus

4. Which of the following is most advanced in the evolutionary trend of animals?
A. Liver fluke
B. Earthworm
C. Snail
D. Cockroach

5. Which of the following is the lowest category of classification?
A. Class
B. Species
C. Family
D. Genus

6. Plants that show secondary growth are usually found among the
A. thallophytes
B. pteridophytes
C. monocotyledons
D. dicotyledons

7. The fungi are distinct group of eukaryotes mainly because they have
A. spores
B. no chlorophyll
C. many fruiting bodies
D. sexual and sexual reproduction

8. An arthropod that is destructive at early stage of its life cycle is
A. butterfly
B. mosquito
C. bee
D. millipede

9. An animal body that can be cut along its axis in any plane to give two identical parts is said to be
A. radially symmetrical
B. bilaterally symmetrical
C. asymmetrical
D. symmetrical

10. Which of the following possesses mammary gland?
A. Dogfish
B. whale
C. shark
D. catfish

11. The feature that links birds to reptiles in evolution is the possession of
A. feathers
B. break
C. skeleton
D. scales

12. Countershading is an adaptive feature that enables animals to
    A. fight enemies
    B. remain undetected
    C. warn enemies
    D. attract mates

13. Which of the following plant structures lacks a waterproof cuticle?
    A. leaf
    B. stem
    C. root
    D. shoot

14. In the mammalian male reproductive system, the part that serves as a passage for both urine and semen is the
    A. urethra
    B. ureter
    C. bladder
    D. seminal vesicle

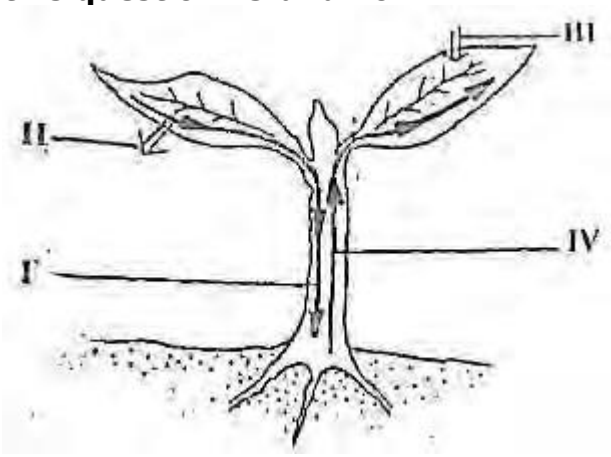
15. In plants which of the following is required in minute quantities for growth?
    A. Copper
    B. Potassium
    C. Phosphorus
    D. Sodium

16. Which of the following organisms is both parasitic and autotrophic?
    A. Sundew
    B. Loran thus
    C. Rhizopus
    D. Tapeworm

17. A function of the hydrochloric acid produced in the human stomach during digestion is to
    A. neutralise the effect of bile
    B. coagulate milk protein and emulsify fats
    C. stop the action of ptyalin
    D. break up food into smaller particles

18. Which of the following is a polysaccharide?
    A. Glucose
    B. Sucrose
    C. Maltose
    D. Cellulose

Use the diagram below to answer this question 19 and 20.



19. Arrows represent directional movement materials.
    Transportation in the xylem is represented by
    A. I
    B. II
    C. III
    D. IV

20. The arrow labelled ll represents the
    A. release of oxygen
    B. intake of carbon (IV) oxide
    C. movement of photosynthates
    D. movement of nutrients

21. In the kidney of mammals, the site of ultrafiltration is the
    A. uriniferous tubule
    B. Bowman's capsule
    C. loop of Henle
    D. renal tubule

22. Which of the following is involved in secondary thickening in plants?
    A. Collenchyma and xylem cells
    B. Vascular cambium
    C. Vascular cambium and cork cambium
    D. Cork cambium and sclerenchyma

23. An example of a fruit that develops from a single carpel is
    A. okro
    B. tomato
    C. bean
    D. orange

24. The developing embryo is usually contained in the part labelled
    A. IV
    B. III
    C. II
    D. I

25. The function of the part labelled lll is to
    A. produce egg cells
    B. protect sperms during fertilization
    C. secrete hormones during coitus
    D. protect the developing embryo

26. Plant growth can be artificially stimulated by the addition of
    A. gibberellin
    B. kinin
    C. abscisic acid
    D. ethylene

27. The autonomic nervous system consists of neurons that control the
    A. voluntary muscles
    B. heart beat
    C. tongue
    D. hands

28. Plants of temperate origin can be grown in tropical areas in the vegetation zones of the
    A. rain forest
    B. Guinea savanna
    C. Sudan savanna
    D. montane forest

29. The water cycle is maintained mainly by
    A. evaporation of water in the environment
    B. evaporation and condensation of water in the environment
    C. condensation of water in the environment
    D. transpiration and respiration in plants

30. Organisms living in an estuarine habitat are adapted to
    A. withstand wide fluctuations in temperature
    B. survive only in water with low salinity
    C. withstand wide fluctuations in salinity
    D. feed only on phytoplankton and dead organic matter

31. The presence of stilt roots, pneumatophores, sunken stomata and salt glands are adaptive features of plants found in the
    A. tropical rainforest
    B. mangrove swamps
    C. grassland
    D. montane forest

32. Which of the following animals can exist solely on the water they get from food and metabolic reactions?
    A. forest arboreal dweller
    B. Desert dwellers
    C. forest-ground dweller
    D. rainforest dwellers

33. The most likely first colonizers of a bare rock are
    A. mosses
    B. ferns
    C. lichen
    D. fungi

34. The carrying capacity of a habitat is reached when the population growth begins to
    A. increase slowly
    B. increase exponentially
    C. slow down
    D. remain steady

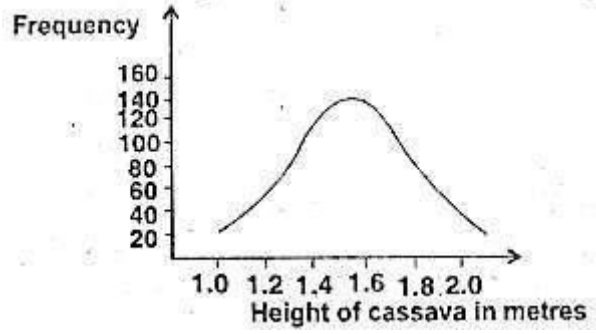
35. The abiotic factors that control human population include
    A. disease and famine
    B. space and rainfall
    C. flooding and earthquake
    D. temperature and disease

36. An indigenous method of renewing and maintaining soil fertility is by
    A. clearing farms by burning
    B. planting one crop type

C. adding inorganic fertilizers yearly
D. crop rotation and shifting cultivation

37. The diseases caused by water-borne pathogens include
A. gonorrhoea and poliomyelitis
B. typhoid and syphilis
C. tuberculosis and cholera
D. typhoid and cholera

Use the diagram below to answer question 38 and 39.



38. The graph illustrates
A. the highest frequency for height of 2 metres
B. a discontinuously varying character
C. a continuously varying character
D. total yield in a cassava farm

39. The largest number of cassava plants has an approximate height of
A. 1.4m
B. 1.6m
C. 1.8m
D. 2.0m

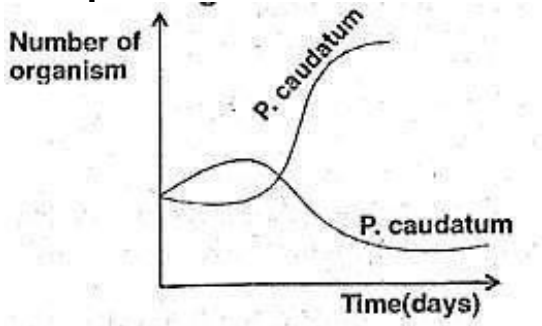
40. Which of the following is true in blood transfusion?
A. person of blood group AB can donate blood only to another person of blood group AB
B. persons of blood groups A and B can donate or receive blood from each other
C. A person of blood group AB can receive blood only from persons of blood group A or B
D. A person of blood group O can donate only to a person of blood group O

41. A yellow maize is planted and all the fruits obtained are of yellow seeds. When they are cross-bred, yellow seeds and white seeds are obtained in a ratio 3:1. The yellow seed is said to be
A. non-heritable
B. sex-linked
C. a recessive trait
D. a dominant trait

42. When a colour-blind man marries a carrier woman. What is the probability of their offspring being colour blind?
A. 25%
B. 50%
C. 75%
D. 100%

43. The correct base pairing for DNA is
A. adenine → thymine and guanine → cytosine
B. adenine → guanine and thymine → cytosine
C. adenine → cytosine and guanine → thymine
D. adenine → adenine and cytosine → cytosine

Use the diagram above to answer this question 44 and 45



44. The type of interaction shown is referred to as
A. interspecific competition
B. intraspecific competition
C. mutualism
D. cooperation

45. Which of the following statement is true of the interaction?
A. P aurelia is better adapted for obtaining food than P caudatum
B. P caudatum is better adapted for obtaining food than P. aurelia
C. both organisms cannot coexist
D. both organisms cannot reproduce

46. The short thick break in birds is an adaptation for
A. crushing seeds
B. sucking nectar
C. tearing flash
D. straining mud

47. The basking of Agama lizards in the sun is to
A. change the colour of their body
B. raise their body temperature to become active
C. fight to defend their territories
D. attract the female for courtship

48. The significance of a very large number of termites involved in nuptial swarming is to
A. provide birds with plenty of food
B. ensure their perpetuation despite predatory pressure
C. search for a favourable place to breed
D. ensure that every individual gets a mate

49. The use and disuse of body parts and the inheritance of acquired traits were used to explain
A. Darwin's theory
B. Lamarek's theory
C. genetic drift
D. gene flow

50. From his study of Galapagos finches, Darwin derived his theory of evolution from
A. comparative anatomy
B. comparative physiology
C. fossil remains
D. comparative embryology

ANSWER KEYS

1. C
2. B
3. C
4. D
5. B
6. B
7. B
8. A
9. A
10. B
11. D
12. B
13. C
14. A
15. A
16. A
17. C
18. D
19. D
20. A
21. B
22. C
23. C
24. C
25. A
26. A
27. B
28. B

29. B
30. C
31. B
32. B
33. D
34. C
35. C
36. D
37. D
38. B
39. B
40. A
41. D
42. B
43. A
44. A
45. C
46. A
47. D
48. B
49. B
50. B

UTME 2003 BIOLOGY QUESTIONS

PAPER TYPE: B

1. Which Question Paper Type of Biology is given to you?
   A. Type D
   B. Type I
   C. Type B
   D. Type U

2. The process in which complex substances are broken down into simpler ones is referred to as
   A. anabolism
   B. catabolism
   C. metabolism
   D. tropism

3. The organ which is sensitive to light in Euglena is the
   A. gullet
   B. flagellum
   C. chloroplast
   D. eyespot

4. The organelles present in cells that are actively respiring and photosynthesizing are
   A. lysosomes and ribosomes
   B. Golgi apparatus and endoplasmic reticulum
   C. nucleus and centrioles
   D. mitochondria and chloroplast

5. Taenia solium can be found in
   A. cow
   B. goat
   C. dog
   D. pig

6. The structure labelled II is the
   A. spermathecal pore
   B. cocoon
   C. clitellum
   D. chaetae

7. 

   The organism is found in soils rich in
   A. mud
   B. humus
   C. clay
   D. sand

8. Which of the following describes a characteristic of arthropods?
   A. The organism finds it easy to grow freely
   B. the organism has a pair of jointed appendages
   C. the body is not divided into a number of segments seg
   D. the body is covered by chitin

9. Which of the following distinguishes a butterfly from a moth?
   A. the wings of butterfly rest horizontally but those of moth rest vertically
   B. Both are active during the day
   C. they have similar antennae
   D. the abdomen of moth is fatter than that of butterfly

10. Which of the following types of feathers is used for flight in birds?
    A. Quill
    B. Filo plume
    C. Covert
    D. Down

11. The plants that grow in deserts or very dry areas are referred to as
    A. mesophytes
    B. hydrophytes
    C. epiphytes
    D. xerophytes

12. Which of the following is the simplest living organism?
    A. Paramecium
    B. Virus
    C. Amoeba
    D. Chlamydomonas

13. Proboscis is a structure that is mostly found in
    A. insects
    B. tapeworms
    C. amphibians
    D. molluscs

14. The structural adaptation of desert plants for water conservation is
    A. broad leaves with numerous stomata
    B. spongy mesophyll
    C. spiny leaves
    D. prominent stomata in leaves

15. The long and sharp clawed feet of birds is an adaptation for
    A. crushing seeds
    B. scooping mud
    C. tearing flesh
    D. grasping prey

16. During the manufacture of food by plants, which of the following organism use energy from the sun?
    A. anabaena
    B. sulphur bacteria
    C. Nitrosomonas sp.
    D. Nitrobacter sp.

17. Movement of minerals and chemical compounds with a plant occurs during
    A. osmosis
    B. translocation
    C. transpiration
    D. diffusion

18. The enzyme that is present in the saliva is
    A. rennin
    B. lipase
    C. pepsin
    D. ptyalin

19. Plants that have special devices for trapping and digesting insects are
    A. carnivorous
    B. symbiotic
    C. parasitic
    D. saprophytic

20. The process of transforming the chemical energy of cellular fuels into the high energy bonds of ATP in plants is
    A. autotropism
    B. photosynthesis
    C. photolysis
    D. respiration

21. Fungi are referred to as hetotrophs because they
    A. are filamentous
    B. lack chlorophyll
    C. have mycelium
    D. lack roots

22. An example of a parasitic protozoan is
    A. Paramecium
    B. Plasmodium
    C. Euglena
    D. Chlamydomonas

23. Which blood cell are involved in the immune response of vertebrates?
    A. Phagoecytes
    B. lymphocytes
    C. erythrocytes
    D. monocytes

24. The blood circulatory system of vertebrates consists of
    A. heart, arteries, capillaries and veins
    B. heart, aorta, capillaries and veins
    C. heart, aorta, arteries and veins

D. heart, vena cava, arteries, and veins

25. A plant tissue that carries water and mineral salts is the
    A. cambium
    B. xylem
    C. cortex
    D. phloem

26. Which of the following helps in the clotting of blood?
    A. Red blood cells
    B. White blood cells
    C. Plasma
    D. Platelets

27. Which of the following forms about 55% of the volume of the blood in man?
    A. leucocytes
    B. platelets
    C. plasma
    D. erythrocytes

28. The part of the mammalian skin involved in excretion is the
    A. sweat glands
    B. Malpighian layer
    C. sebaceous gland
    D. horny layer

29. Which of the following is a waste product of an insect?
    A. Alkaloids
    B. Uric acid
    C. Sweat
    D. Mucilage

30. The main structure in vertebrates that supports and protects the body is the
    A. skeleton
    B. ligament
    C. muscle
    D. joint

31. The chitin in the exoskeleton of many arthropods is strengthened by
    A. lids
    B. proteins
    C. calcium compounds
    D. organic salt

32. The transfer of pollen grains from the anther to a sigma is
    A. propagation
    B. placentation
    C. pollination
    D. fertilization

33. The male reproductive organ of a flower is the
    A. carpel
    B. stamen
    C. petal
    D. sepal

34. The gland that is found just below the hypothalamus is the
    A. parathyroid
    B. adrenal
    C. pituitary
    D. thyroid

35. The most important plant hormone is
    A. cytokinin
    B. abscisic acid
    C. auxin
    D. gibberellin

36. The sensory cell that responds to dim light is referred to as the
    A. cone
    B. lens
    C. rod
    D. iris

37. The absence of anti-diuretic hormone in humans results in
    A. decreasing dehydration
    B. drastic dehydration

C. eliminating dehydration
D. increasing dehydration

38. Oestrogen is a hormone that is synthesized in the
A. ovaries
B. testes
C. anterior pituitary
D. adrenal cortex

39. The eye defect cause by the development of cloudy areas in the lenses is
A. presbyopia
B. glaucoma
C. cataract
D. astigmatism

40. A pollutant that is biodegradable is
A. crude oil
B. heavy metals
C. cellophane
D. sewage

41. A tropical disease caused by Trypanosoma is
A. sleeping sickness
B. river blindness
C. yellow fever
D. malaria

42. The solid part of the ecosystem is referred to as the
A. atmosphere
B. hydrosphere
C. biosphere
D. lithosphere

43. Which of the following is caused by Treponema palladium?
A. Gonorrhoea
B. Leprosy
C. Tuberculosis
D. Syphilis

44. To which blood group do universal recipients belong?
A. B
B. A
C. O
D. AB

45. The clumping together of red blood cells is
A. agglutination
B. fusion
C. transfusion
D. compatibility

46. Physiological adaptation to very dry conditions in animals demonstrates
A. rejuvenation
B. xeromorphism
C. hibernation
D. aestivation

47. One of adaptation of Cactus opuntia to conserve water is the reduction of
A. internodes
B. stem to leaves
C. leaves to spine
D. flower size

48. Which of the following structure is adapted for feeding in a bird of prey?
A. Hooked break and sharp claws
B. Smooth beak and strong claws
C. Big beaks and strong feet
D. Pointed beak and strong claws

49. The special pigment for colour change in chameleon is
A. melanin
B. carotenoid
C. chromatin
D. chromatophore

50. The behavioural adaptation in social insects could best be described as
A. symbiosis

B. saprophytism
C. parasitism
D. commensalisms

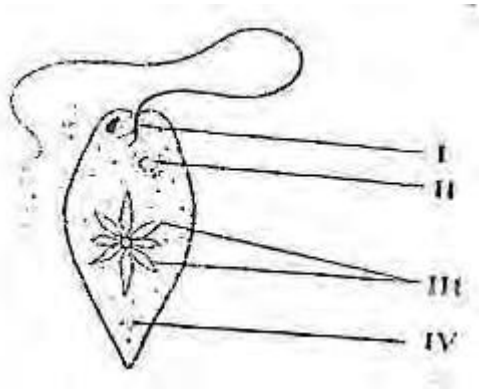
ANSWER KEYS

1. C
2. B
3. D
4. D
5. D
6. C
7. B
8. D
9. A
10. A
11. D
12. C
13. A
14. C
15. D
16. A
17. B
18. D
19. A
20. D
21. B
22. B
23. A
24. A
25. B
26. D
27. C
28. A
29. B
30. A
31. C
32. C
33. B
34. C
35. C
36. C
37. A
38. A
39. C
40. D
41. A
42. D
43. D
44. D
45. A
46. C
47. C
48. A
49. A
50. A

UTME 2004 BIOLOGY QUESTIONS

1. Which Question paper Type of Biology is given to you?
   A. Type F
   B. Type E
   C. Type L
   D. Type S

Use the diagram below to answer and 3.



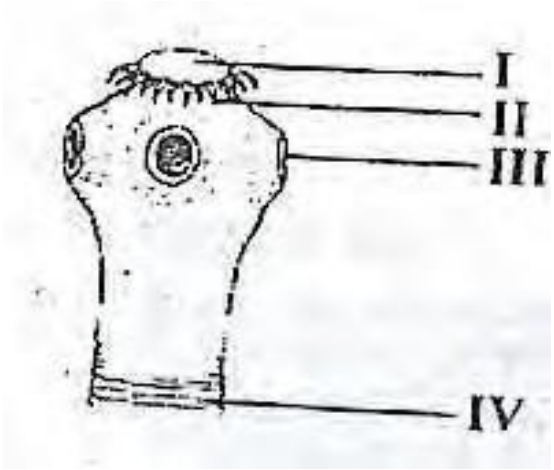
2. The part labelled II is the
   A. nucleus
   B. eyespot
   C. basal granule
   D. contractile vacuole

3. The part responsible for photosynthesis is labelled
   A. III
   B. IV
   C. I
   D. II

4. The lowest level of organization in living organisms is
   A. organ
   B. cell
   C. system
   D. tissue

5. Which of the following is the most complex according to their cellular level of organization?
   A. Heart
   B. Hair
   C. Euglena
   D. Hydra

Use the diagram below to answer questions 6 and 7



6. The organs for attachments to the lining of the host's intestine are labelled
   A. II and III
   B. III and IV
   C. I and II
   D. I and III

7. The young proglottid is represented by
   A. III
   B. IV
   C. I
   D. II

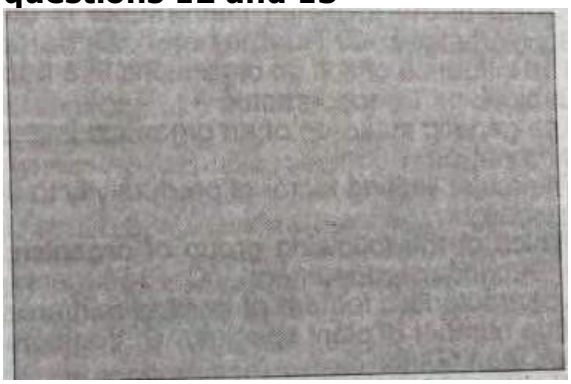
8. Which of the following organisms is multi-cellular?
   A. Chlamydomonas
   B. Spirogyra
   C. Amoeba
   D. Euglena

9. In bryophytes, sex organs are produced in the
   A. protonema
   B. sporophyte
   C. gametophyte
   D. rhizoid

10. Seed plants are the most dominant vegetation on land because of
    A. their motile gametes
    B. their ability to photosynthesize
    C. efficient seed dispersal
    D. availability of water

11. Which of the following is an arboreal organism?
    A. Elephant
    B. Fish
    C. Antelope
    D. Bird

Use the diagram below to answer questions 12 and 13



12. The part labelled I is the
    A. xylem
    B. phloem
    C. root hairs
    D. cortex

13. The diagram is the transverse section of a
    A. monocotyledonous stem
    B. dicotyledonous stem
    C. monocotyledonous root
    D. dicotyledonous root

14. $I^{2}_{1}, c^{0}_{0}, pm^{3}_{2}, m^{3}_{3}.$

    The general formula above represents that of
    A. an omnivore
    B. a detritus feeder
    C. a carnivore
    D. a herbivore

15. A circulatory system is very essential in mammals but not in smaller organisms like Amoeba because
    A. amoeba lives in freshwater
    B. diffusion is sufficient to transport materials in Amoeba
    C. amoeba lacks blood containing haemoglobin
    D. amoeba exhibits anaerobic respiration

16. In vascular plants, the sieve tubes and companion cells are present in the
    A. cambium
    B. cortex
    C. xylem
    D. phloem

17. The stomata of leaves are similar in function to the
    A. pharynx of humans
    B. scales of fish
    C. spiracle of insects
    D. trachea of toads

18. The use of moist skin for respiration in amphibians is known as
    A. cellular respiration
    B. cutaneous respiration
    C. buccal respiration
    D. pulmonary respiration

19. Water in plants is removed as water vapour through the process of
    A. diffusion
    B. osmosis
    C. evaporation
    D. transpiration

20. An example of an organ of perennation in plants is
    A. rhizome
    B. seed
    C. petal of a flower
    D. calyx of flower

21. Alternation of generation is a feature shown in
    A. mosses
    B. fungi
    C. grasses
    D. conifers

22. I. Growth is mainly apical
II. Growth is specific with definite shape
III. Growth is throughout life.

Which of the above correctly describes the growth pattern in plants?
A. I, II and III only
B. II and III only
C. I and II only
D. I and III only

23. Coordination and regulation of body activities in mammals are achieved by the
A. nerves and muscle
B. nerves and hormones
C. nerves only
D. hormones only

24. The Cerebellum of the Brain controls
A. reflex action
B. muscular activity
C. emotional expressions
D. the Endocrine system

25. The part of the brain responsible for peristalsis is the
A. Olfactory Lobe
B. Medulla Oblongata
C. Hypothalamus
D. Thalamus

26. Which of the following instruments is used for measuring atmospheric pressure?
A. Hydrometer
B. Hygrometer
C. Thermometer
D. Barometer

27. The influence of soil on organisms in a habitat is referred to as
A. edaphic
B. physiographic
C. biotic
D. topographic

28. The genetic make-up of an organism is described as
A. allele
B. chromosome
C. phenotype
D. genotype

29. The major limiting factor of productivity in the aquatic habitat is
A. food
B. temperature
C. water
D. sunlight

30. Which of the following group of organisms feeds directly on green plants?
A. Primary Consumers
B. Secondary Consumers
C. Producers
D. Decomposers

31. A characteristic feature of tropical rainforest is that it
A. Contains trees with narrow leaves
B. Contains large number of plant species
C. Contains fewer number of plant species
D. Has total annual rainfall of less than 50cm

32. The study of how and why population size change over time is
A. Population estimation
B. Population dynamics
C. Population ecology
D. Population Cycle

33. A severe and long dry season is a characteristic feature of
A. Sahel Savanna
B. Mangrove Swamps
C. Sudan Savanna
D. Guinea Savanna

34. Which of the following is a nitrogen-fixing blue-green algae of soil?
A. Rhizobium
B. Nitrosomonas
C. Clostridium
D. Anabaena

35. The soil with highest water-retaining capacity is
A. Clayey Soil

B. Stoney soil
C. Sandy soil
D. Loamy Soil

36. The causative agent of Poliomyelitis is
A. Virus
B. Fungus
C. Protozoan
D. Bacterium

37. One of the ways of controlling noise pollution in urban areas is
A. by siting industries away from residential areas
B. that fuel should be completely combusted by engines
C. by planting trees on both sides of the road
D. by wearing ear devices

38. A constituent of the exhaust fumes from electricity generating sets which causes serious pollution is
A. Carbon (II) Oxide
B. Water Vapour
C. Ozone
D. Carbon (IV) Oxide

39. Which of the following is true of small pox?
A. It is transmitted by bacteria
B. It can effectively be controlled with antibiotics
C. It can effectively be controlled by vaccination
D. It is a water-borne infection

40. A pollutant that is mostly associated with acid rain is
A. Nitrogen (IV) Oxide
B. Ozone
C. Fluorine

41. When the adults have reach a certain degree of weakness, the process of binary fission is replaced by conjugation in
A. Paramecium
B. Euglena
C. Amoeba
D. Plasmodium

42. Whorls, arches, loops and compounds are types of variation in
A. Colour
B. Finger prints
C. Hair Colour
D. Blood group

43. A couple has 10 children, all female. Which of the following best explains the situation?
A. The sex determination was by the man's X chromosome
B. The man's sperm count is low
C. The woman is not capable of producing male children
D. The sex determination was by the man's Y chromosome

44. A biological agent with antiviral property is
A. Interferon
B. enzyme
C. antibiotic
D. disinfectant

45. One of the advantages of outbreeding is
A. pests tolerance
B. disease resistance
C. fast growth
D. tall height

46. An individual with blood group AB can receive blood from those in blood group(s)
A. A, B, AB, O
B. A, AB and O only
C. AB only
D. A and B only

47. The stream-lined shape of fishes is an adaptation for
A. Securing mates
B. easy movement
C. obtaining food
D. defence and attack

48. An example of a poikilothermic organism is a
A. Lizard
B. Cockroach
C. rabbit
D. bird

49. All living organisms are constantly involved in a struggle for existence. This was proposed by
    A. Morgan
    B. Darwin
    C. Lamarck
    D. Wallace

50. Adaptive radiation is illustrated in
    A. modified insect mouthparts
    B. dentition in mammals
    C. wings in birds and bats
    D. appendages in insects

ANSWER KEYS

1. C
2. D
3. A
4. B
5. B
6. A
7. B
8. B
9. C
10. C
11. D
12. C
13. D
14. D
15. B
16. A
17. C
18. B
19. D
20. B
21. A
22. D
23. B
24. B
25. B
26. D
27. A
28. C
29. A
30. A
31. B
32. B
33. A
34. A
35. A
36. A
37. A
38. A
39. C
40. A
41. A
42. B
43. A
44. B
45. B
46. A
47. B
48. A
49. B
50. C