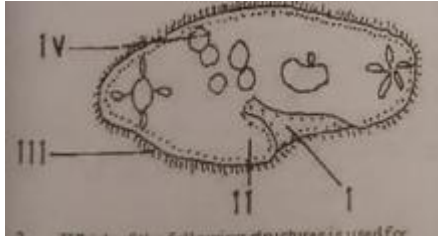


## Biology

1. In the scientific name *Bagleau vivaks*, *vivaks* is the
  - A. Genus name.
  - B. Species name.
  - C. Family name.
  - D. Class name.

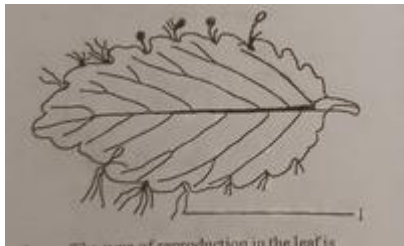
The diagram below is an illustration of an organism. Study it and answer questions 2 and 3.



2. Which of the following structures is used for locomotion in the organism?
  - A. I
  - B. II
  - C. III
  - D. IV
3. Which of the following processes would be affected if the part labelled I is removed?
  - A. Irritability
  - B. Nutrition
  - C. Locomotion
  - D. Reproduction
4. The sexual reproductive structure in ferns is
  - A. sorus.
  - B. seed.
  - C. radicle.
  - D. endosperm.
5. A disadvantage of complexity in higher organisms is
  - A. a high demand for food and oxygen.
  - B. specialization of parts of the body.
  - C. little amount of energy dissipated in functioning.
  - D. ability to function in many specialized roles.
6. Which of the following living things is not single-celled?
  - A. *Euglena*
  - B. *Paramecium*
  - C. *Amoeba*
  - D. *Caesalpinia*
7. Synthesis of proteins occurs in the
  - A. mitochondrion.
  - B. rough endoplasmic reticulum.

- C. Golgi body.
  - D. chloroplast.
8. The process by which a drop of ink spreads uniformly in a beaker of water is called
- A. absorption.
  - B. osmosis.
  - C. diffusion.
  - D. plasmolysis.

The diagram below is an illustration of a leaf.  
*Study it and answer questions 9 and 10.*



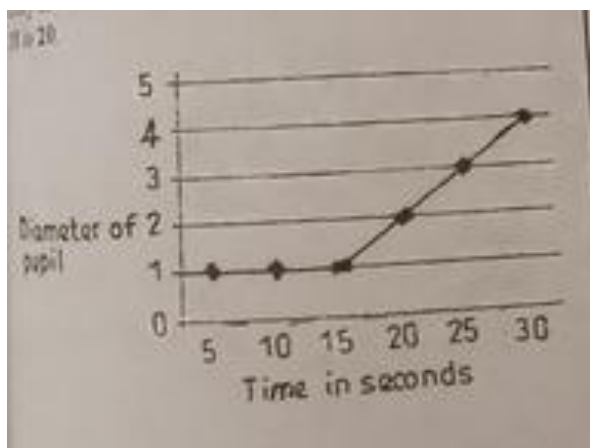
9. The type of reproduction in the leaf is
- A. binary fission.
  - B. budding.
  - C. spore formation.
  - D. vegetative.
10. The part labelled I is
- A. an adventitious root.
  - B. a taproot.
  - C. an axillary root.
  - D. a fibrous root.
11. The bone on which the skull rests is known as
- A. odontoid process.
  - B. axis.
  - C. atlas.
  - D. occipital condyle.

The diagram below illustrates the direction of a biological process that takes place in some cells of a plant. *Study them and answer questions 12 and 13.*



12. The process that takes place in the cells is
- A. transpiration.
  - B. phosphorylation.
  - C. translocation.
  - D. respiration.
13. The process takes place in the
- A. xylem.

- B. phloem.  
C. epidermis.  
D. pith.
14. Which of the following processes occurs during exhalation in humans? The  
A. ribs are pulled upward and outward.  
B. space in chest cavity increases.  
C. diaphragm becomes flattened.  
D. diaphragm forms a dome shape.
15. The parts of the mammalian kidney which contain the tubules are the  
A. medulla and ureter.  
B. pyramid and cortex.  
C. ureter and cortex.  
D. cortex and medulla.
16. A chemical substance produced in small quantities in one part of the body and carried to other parts where it produces a response is called  
A. urine  
B. lymph  
C. enzyme  
D. hormone
17. A change in the environment to which an organism responds and also serves as a signal for nerve actions is known as  
A. reaction  
B. incident  
C. stimulus  
D. synapse
1. A man was reading in a well-lit room when suddenly the light was switched off for thirty seconds. The graph below shows the diameter of the pupil as observed every five seconds. Study it and answer questions 18 to 20.



18. The statement that describes the change in the diameter of the pupil is that the diameter of the pupil  
A. increased because the light intensity increased.  
B. decreased because the light intensity decreased.  
C. increased because the light intensity decreased.  
D. decreased because the light intensity increased.

19. The diameter of the pupil remained unchanged at
  - A. 5, 10, and 15 seconds.
  - B. 5, 10, and 20 seconds.
  - C. 10, 20, and 25 seconds.
  - D. 10, 20, and 30 seconds.
20. The diameter of the pupil remained unchanged for a period because the light intensity was
  - A. reduced
  - B. increased
  - C. steady
  - D. harmful
21. A collection of petals is called
  - A. calyx
  - B. receptacle
  - C. stigma
  - D. corolla
22. How many molecules of ATP are produced when one mole of glucose is completely oxidized?
  - A. 10
  - B. 24
  - C. 30
  - D. 38

Use the information below to answer questions: 23–24.

A variegated leaf was removed from a plant that had been exposed to sunlight for some hours. It was put in boiling water for five minutes. It was put in alcohol and rinsed in warm water. A few drops of iodine solution were added to it.

23. The aim of the experiment was to show that
  - A. chlorophyll is necessary for photosynthesis
  - B. light is necessary for photosynthesis
  - C. oxygen is given off during photosynthesis
  - D. water is necessary for photosynthesis
24. The reason for putting the leaf in boiling water was to
  - A. decolourize the leaf by removing chlorophyll
  - B. soften the leaf
  - C. kill the cells and expose starch grains
  - D. destroy the chlorophyll
25. The simple sugars that combine to form sucrose are
  - A. glucose + glucose
  - B. glucose + galactose
  - C. glucose + fructose
  - D. fructose + fructose

Use the following list of nutrient deficiency diseases in humans to answer questions 26 and 27

### **Nutrient Deficiency Diseases**

I - Rickets

- II - Night blindness
- III - Failure of blood to clot
- IV - Beriberi

26. Which of the following deficiency diseases is caused by lack of Vitamin A?
  - A. I
  - B. II
  - C. III
  - D. IV
27. Which of the following combinations of deficiency disease and remedy is correctly matched?
  - A. I – Vitamin K
  - B. II – Vitamin D
  - C. III – Vitamin C
  - D. IV – Vitamin B
28. The major importance of the water cycle is in
  - A. industrialization
  - B. conservation
  - C. osmoregulation
  - D. digestion
29. The best method of refuse disposal in a community is
  - A. composting
  - B. incineration
  - C. dumping in the sea
  - D. dumping in fast flowing water
30. Which of the following statements is not an adaptive feature of organisms in the desert?
  - A. Few sweat glands and leathery skin
  - B. Small roots with thin epidermis
  - C. Stems with spines
  - D. Excretion of uric acid in some animals
31. Which of the following factors is density-dependent?
  - A. Cannibalism
  - B. Bushfire
  - C. Drought
  - D. Flood
32. Populations of different species of organisms living together and interacting in a habitat is known as
  - A. biosphere
  - B. community
  - C. niche
  - D. environment
33. Water transparency is measured using
  - A. hygrometer
  - B. anemometer
  - C. Six's thermometer
  - D. Secchi disc
34. Which of the following statements about organisms in a food chain is not correct?
  - A. Green plants convert solar to chemical energy

- B. Green plants manufacture food from organic compounds
  - C. All blue-green algae and green plants are producers
  - D. Producers make food from inorganic compounds
35. The relationship between a tapeworm and its host is
- A. mutualism
  - B. commensalism
  - C. predation
  - D. parasitism
36. Most tropical plants shed leaves during dry conditions to
- A. reduce growth rate
  - B. conserve water
  - C. reduce competition
  - D. minimize photosynthesis
37. The practice of warming soup regularly is essential to
- A. inactivate microorganisms
  - B. remove excess water
  - C. retain the taste
  - D. break down cellulose substances
38. Which of the following qualifies the female *Anopheles* mosquito as an effective vector of malaria? It
- A. lays few eggs
  - B. has sucking mouthparts
  - C. makes a buzzing sound
  - D. has a small body
39. The most appropriate method for conserving fish is
- A. use of chemicals
  - B. small mesh nets
  - C. observing close season regulations
  - D. removing spawning grounds
40. Which of the following about water conservation is not correct?
- A. International laws control fishing methods
  - B. Pond resources are exhaustible
  - C. Organizing fishing festivals conserves fish
  - D. Desertification cannot dry lakes
41. Natural resources can be conserved by all except
- A. legislation
  - B. afforestation
  - C. maintaining wetlands
  - D. unrestricted hunting
42. Identical twins can be distinguished by
- A. physiological variation
  - B. genetic trait
  - C. morphological variation
  - D. blood group
43. Which of the following variations is caused by both genetics and environment?
- A. Obesity
  - B. Eye colour
  - C. Blood group
  - D. Sex

44. Individuals with blood group AB can donate blood to individuals with
- O
  - A
  - AB
  - B
45. If two parents are sickle-cell carriers, their genotypes would be
- $Hb^A Hb^A$  and  $Hb^A Hb^A$
  - $Hb^A Hb^s$  and  $Hb^A Hb^s$
  - $Hb^A Hb^A$  and  $Hb^s Hb^s$
  - $Hb^A Hb^s$  and  $Hb^s Hb^s$
46. More combinations of alleles in gametes arise due to
- centromere
  - chiasmata
  - crossing over
  - anaphase
47. Which of the following is not correct about fingerprint as a crime tool?
- Unique to a person
  - Permanent patterns
  - Patterns more distinct in babies
  - Imprints on objects handled
48. Which of the following insects is useful to flowers?
- Butterfly
  - Cockroach
  - Housefly
  - Beetle
49. The division of labour in social insects is an example of
- hormonal influence
  - behavioural adaptation
  - commensalism
  - structural adaptation
50. Which feature is used by chameleons to escape predation?
- Fearsome appearance
  - Curly tail
  - Offensive smell
  - Adaptive colouration

Answer

1. B. Species name
2. C. III
3. C. Locomotion
4. A. sorus
5. A. a high demand for food and oxygen
6. D. Caesalpinia
7. B. rough endoplasmic reticulum
8. C. diffusion
9. D. vegetative
10. A. an adventitious root

11. C. atlas
12. C. translocation
13. B. phloem
14. D. diaphragm forms a dome shape
15. D. cortex and medulla
16. D. hormone
17. C. stimulus
18. C. increased because the light intensity decreased
19. A. 5, 10, and 15 seconds
20. C. steady
21. D. corolla
22. D. 38
23. A. chlorophyll is necessary for photosynthesis
24. C. kill the cells and expose starch grains
25. C. glucose + fructose
26. B. II (Night blindness)
27. D. IV – Vitamin B
28. B. conservation
29. B. incineration
30. B. Small roots with thin epidermis
31. A. Cannibalism
32. B. community
33. D. Secchi disc
34. B. Green plants manufacture food from organic compounds ✗ (incorrect statement)
35. D. parasitism
36. B. conserve water
37. A. inactivate microorganisms
38. B. has sucking mouthparts
39. C. observing close season regulations
40. C. Organizing fishing festivals conserves fish ✗ (not correct)
41. D. unrestricted hunting
42. A. physiological variation
43. A. Obesity
44. C. AB
45. B.  $Hb^A Hb^s$  and  $Hb^A Hb^s$
46. C. crossing over
47. C. Patterns more distinct in babies ✗ (not correct)
48. A. Butterfly
49. B. behavioural adaptation
50. D. Adaptive colouration