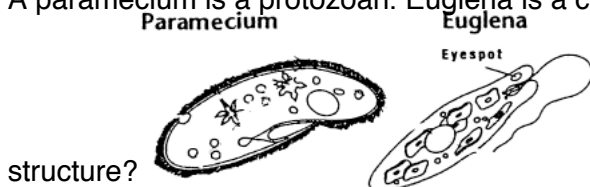


- 1 A paramecium is a protozoan. Euglena is a common euglenoid. How are these two organisms alike in



- A They are both multicellular organisms.
  - B They both have specialized structures that allow them to move.
  - C They both have chloroplasts and carry out photosynthesis.
  - D They both have eyespots that are sensitive to light.
- 2 What do the cells of plants and fungi have in common?
- A They both form hyphae.
  - B They both have cell walls.
  - C They both have chloroplasts.
  - D They both perform photosynthesis.
- 3 Which of the following is found in both prokaryotic and eukaryotic cells?
- A nucleus
  - B mitochondria
  - C genetic material
  - D cell wall
- 4 Which of the following happens in the first stage of photosynthesis?
- A the capturing of energy in sunlight by chlorophyll
  - B the use of captured energy to produce sugar
  - C the absorption of water by plant roots
  - D chemical reactions involving water and carbon dioxide
- 5 Where in a plant does photosynthesis occur?
- A in chloroplasts
  - B in guard cells
  - C in phloem
  - D in stomata

- 6 In which type of plant tissue would you expect to find the fewest chloroplasts?
- A leaf tissue
  - B phloem tissue
  - C root tissue
  - D xylem tissue
- 7 Chlorophyll gives green plants their color. What is the function of chlorophyll?
- A absorbing sunlight for photosynthesis
  - B preventing water loss through transpiration
  - C storing sugars for energy
  - D transporting fluids through the plant
- 8 A scientist takes samples of cells from the top and bottom sides of a plant's leaves. In which sample is she likely to observe more chloroplasts?
- A the sample from the bottom side, because less sunlight is available to those cells
  - B the sample from the bottom side, because there is less water loss from those cells
  - C the sample from the top side, because more sunlight is available to those cells
  - D the sample from the top side, because there is more water loss from those cells
- 9 Which of the following is *not* required for photosynthesis?
- A carbon dioxide
  - B chloroplasts
  - C oxygen
  - D sunlight
- 10 Binary fission is the bacterial process of
- A producing energy.
  - B obtaining food.
  - C forming endospores.
  - D asexual reproduction.
- 11 An offspring that is the result of asexual reproduction

- A has two parents.
- B developed from a zygote.
- C inherited genes from two parents.
- D is genetically identical to its parent.

12 How do sponges reproduce sexually?

- A Sperm from a sponge fertilize eggs in the same sponge.
- B Water carries sperm from one sponge to eggs in another sponge.
- C Water carries eggs from one sponge to sperm in another sponge.
- D Eggs are fertilized by sperm within the sponge's collar cells.

13 Some bacteria can transfer genetic material into another bacterium. This process, called conjugation, is similar to sexual reproduction. What is an advantage of conjugation?

- A It increases the number of bacteria that can be produced at a time.
- B Each new bacterium receives half of the parent's genetic material.
- C The new cells are identical to the parent cells.
- D It results in new bacteria that are genetically different from the parent cells.

14 The diagram above shows a process that takes place during sexual reproduction. What is this



process called?

- A fertilization
- B sperm formation
- C menstruation
- D mitosis

15 Which of these groups of organisms does *not* have specialized structures for sexual reproduction?

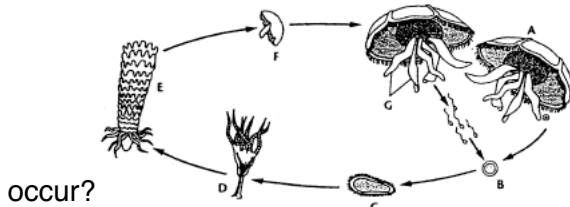
- A bacteria
- B fungi
- C plants
- D animals

16 Hydra reproduce by budding from the parent. Later, they separate and live on their own. Which of the following is a characteristic of this kind of reproduction?

- A The genetic material of two parents is passed on to the new hydra.
- B The new hydra looks different from the parent.
- C The new hydra has an exact copy of the parent's genetic material.
- D The new hydra has half of the parent's genetic material.

17 In the illustration of the life cycle of a jellyfish, in which stage does fertilization

Life Cycle of the Aurelia Jellyfish



- A G
- B B
- C D
- D E

18 In gymnosperms and angiosperms, a seed develops from

- A a fertilized egg.
- B a fruit.
- C a fungus.
- D a spore.

19 Scientists have used fossils to make inferences about the evolution of vertebrates. Which of the following inferences is best supported by fossil evidence?

- A Amphibians evolved from fishes.
- B Birds evolved from mammals.
- C Reptiles evolved from birds.
- D Mammals evolved from birds.

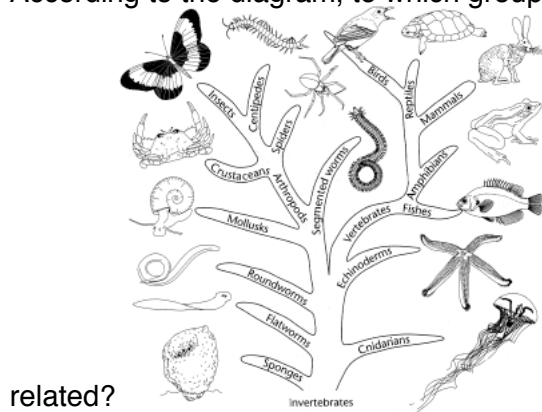
20 Based on fossil evidence, scientists believe the first vertebrates were

- A amphibians.
- B birds.
- C jawless fishes.
- D reptiles.

21 Scientists have identified several characteristics that show that all chordates share a common ancestor. Which is one characteristic present in all chordates?

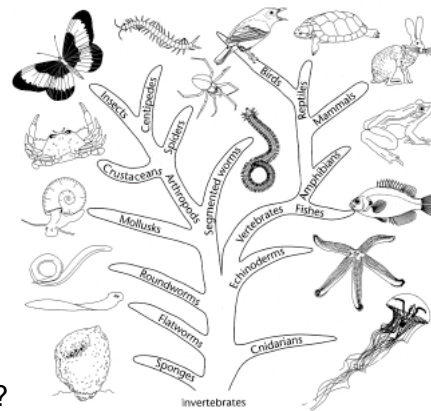
- A ectothermy
- B exoskeleton
- C hinged jaw
- D notochord

22 According to the diagram, to which group are birds *most* closely



- A amphibians
- B mammals
- C reptiles
- D spiders

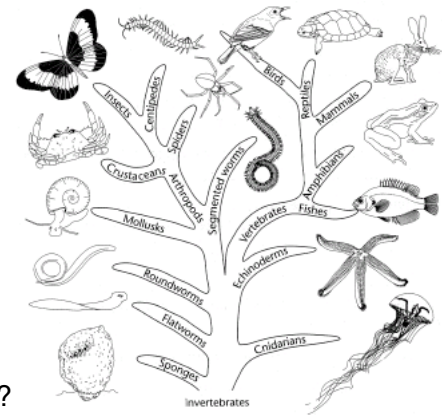
23



Which of the following groups branched *most* recently?

- A cnidarians
- B echinoderms
- C fishes
- D roundworms

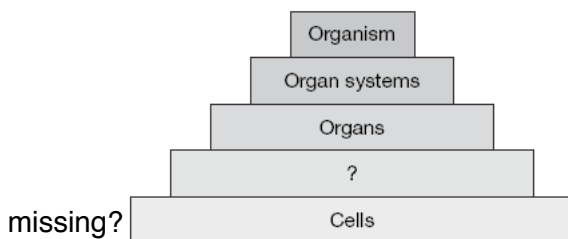
24



Which of the following pairs of animals are *most* closely related?

- A amphibians and fishes
- B mammals and birds
- C mollusks and segmented worms
- D sponges and flatworms

25 The diagram shows the different levels of organization in a living thing. Which level is



- A atoms
- B tissues
- C cell organelles
- D specialized cells

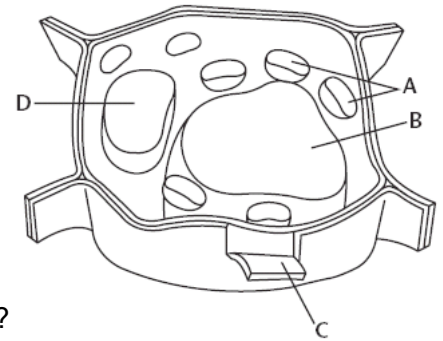
26 Which structures do all organisms have in common?

- A organs
- B systems
- C cells
- D tissues

27 A plant's roots, stems, and leaves are examples of

- A cells.
- B organs.
- C tissues.
- D organ systems.

28



Which level of structural organization is represented in the diagram?

- A cell
- B tissue
- C chloroplast
- D stomata

29 In seed plants, food travels through phloem. Water and minerals travel through the xylem. Phloem and xylem are examples of

- A cells.
- B organs.
- C tissues.
- D organelles.

30 Which level of organization of life is made up of different tissues that work together?

- A cell
- B organ
- C tissue
- D organ system

31 Under which condition are two organs considered to be a part of the same body system?

- A The organs must be located next to each other.
- B The organs must work independently of each other.
- C The organs must work together to perform a function.
- D The organs must be made up of cells with organelles.

32 Tadpoles are the larvae of frogs. Which of the following organs is part of the respiratory system of a tadpole?

- A gill
- B lung
- C swim bladder
- D two-chambered heart

33 A reptile's kidneys are part of its excretory system. How do a reptile's kidneys help it survive?

- A They allow the reptile to get oxygen from water.
- B They concentrate urine so the reptile loses less water.
- C They protect the reptile's eggs from drying out.
- D They pump blood through a closed circulatory system.

34 Which of the following animals has a nervous system that includes a brain?

- A earthworm
- B hydra
- C jellyfish
- D sponge

35 Mollusks have open circulatory systems. An open circulatory system does *not* include

- A blood.
- B blood vessels.
- C a heart.
- D tissues.

36 Arthropods have well-developed nervous systems. In these systems, the organs and tissues work together to

- A bring oxygen to cells and remove wastes.
- B catch and digest food.
- C produce offspring through sexual reproduction.
- D sense the environment and direct body activities.

37 Birds have large chest muscles that are used to

- A digest food for energy.
- B move the bird's wings.
- C reduce body weight.
- D trap heat and keep the bird warm.



38 Unlike arthropods, vertebrates have endoskeletons. How do endoskeletons affect vertebrates' ability to move?

- A They cover internal organs.
- B They give the body its shape.
- C They grow as the animal grows.
- D They provide a place for muscles to attach.

39 Many vertebrates have limb bones that are adapted for

- A digestion.
- B movement.
- C protection.
- D respiration.

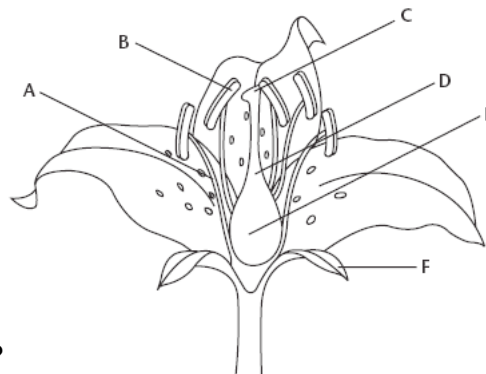
40 All angiosperms

- A produce cones.
- B produce fruits.
- C are seedless.
- D are tropical.

41 During germination, a seed *first*

- A is dispersed.
- B grows leaves.
- C uses its stored food.
- D absorbs water.

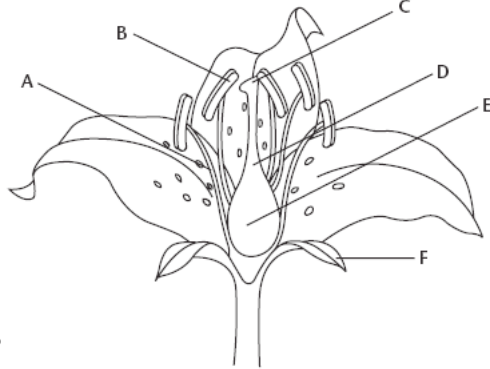
42



After pollination, what happens to Structure E?

- A It develops into a fruit.
- B It causes the petals to drop off the flower.
- C It produces more pollen.
- D It causes the sepals to close around the pistils.

43 Which structures make up the male reproductive structure of the



plant?

- A A and B
- B A, B, and C
- C C, D, and E
- D E and F

44 A flower is pollinated when

- A pollen falls on the sepals.
- B pollen falls on the stigma.
- C a zygote is formed.
- D pollen falls on the ovary.

45 Where in flowers is pollen produced?

- A stigma
- B pistil
- C ovary
- D anther

46 After fertilization occurs, what part of a flower develops into a seed?

- A stamen
- B pollen grain
- C ovule
- D anther

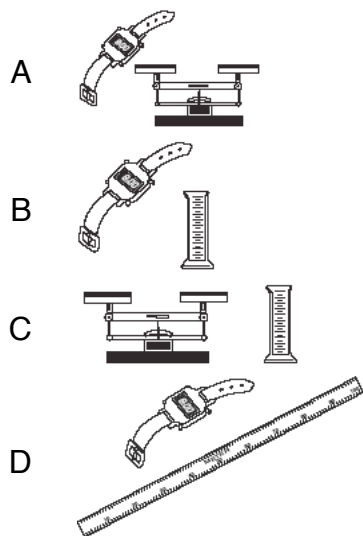
47 Pollen grains contain

- A egg cells.
- B a food source for the embryo.
- C sperm cells.
- D spores.

48 Egg cells are the female reproductive cells of angiosperms. In which structure are egg cells produced?

- A fruit
- B ovule
- C stigma
- D style

49 Which set of tools could you most easily use to measure the speed of a snail?



50 Which tool would be *most* helpful in conducting an investigation on how lizards control body temperature in hot deserts?

- A ruler
- B microscope
- C thermometer
- D tape recorder

51 Greg wants to study the pollen grains produced by a flower. Which tool would be *most* useful?

- A balance
- B binoculars
- C microscope
- D ruler

52 Which tool could you use to find the mass of a fruit?

- A balance
- B graduated cylinder
- C ruler
- D spring scale

53 A student is studying organisms. She would *most* need a microscope to study

- A echinoderms.
- B gymnosperms.
- C mammals.
- D protozoans.

54 Mei wants to model the growth of bacteria over time. Which would be the *best* tool for her to use?

- A calculator
- B computer
- C pencil and paper
- D ruler

55 A student needs to model the relative sizes of several microorganisms. Which of the following objects should he use to compare the relative sizes of a 750-nm *Streptococcus* bacterium and a 250-nm smallpox virus?

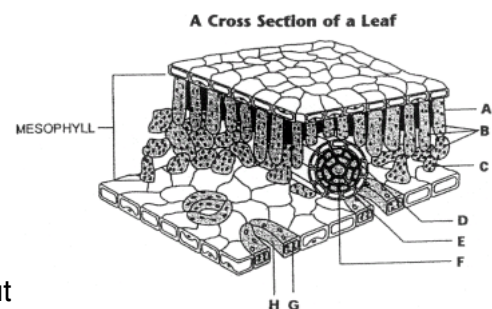
- A a 1-m diameter ball for the bacterium and a 3-m diameter ball for the virus
- B a 3-m diameter ball for the bacterium and a 1-m diameter ball for the virus
- C a 2-m long box for the bacterium and a 1-m long box for the virus
- D a 7-m long box for the bacterium and a 2-m long box for the virus

56 Angela wants to communicate the relative sizes of two types of protist. The *best* way to communicate this information would be a(n)

- A map.
- B oral presentation.
- C scale drawing.
- D written description.

- 57 A protozoan is .5 mm long. Lawrence makes a scale drawing of the protozoan that is 5 cm long. What scale did Lawrence use?
- A 1:10
  - B 1:100
  - C 1:1,000
  - D 1:10,000
- 58 Thom is doing a project on the feeding habits of different mollusks. He draws diagrams of several species of mollusk. Which is the most important feature for Thom to label on his drawings?
- A the circulatory system of each mollusk
  - B the color of each mollusk
  - C the digestive system of each mollusk
  - D the time at which he observed each mollusk
- 59 Dust mites are arthropods that live in dust particles. A dust mite is about .004 mm across. A scale drawing shows a dust mite at a scale of 1:10,000. What is the size of the drawing?
- A .04 mm
  - B .4 mm
  - C 4 mm
  - D 40 mm

60



This diagram would best be used to illustrate a report about

- A how photosynthesis occurs in chloroplasts.
- B the digestive systems of plant-eating mammals.
- C the structure and function of plants.
- D the role of oxygen in respiration.