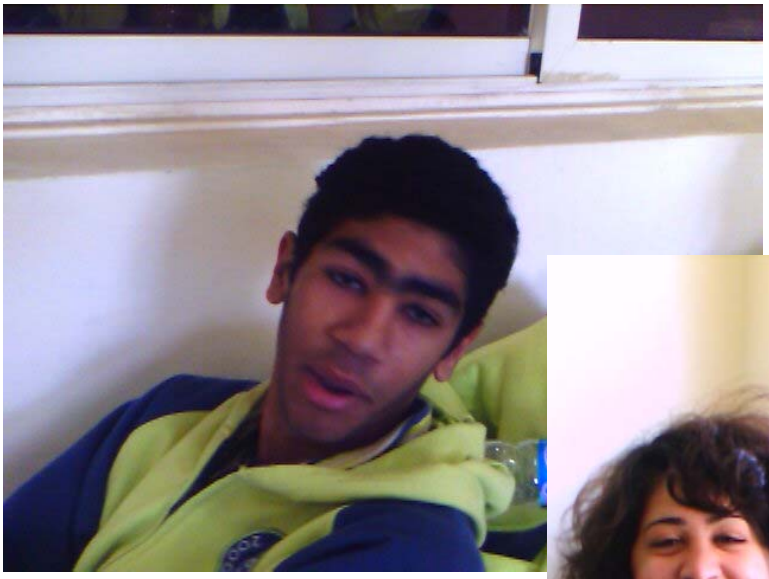
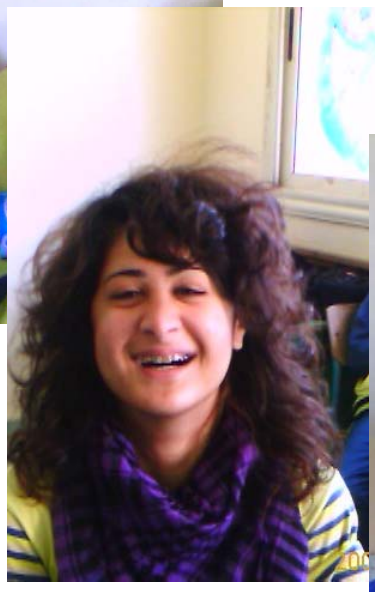
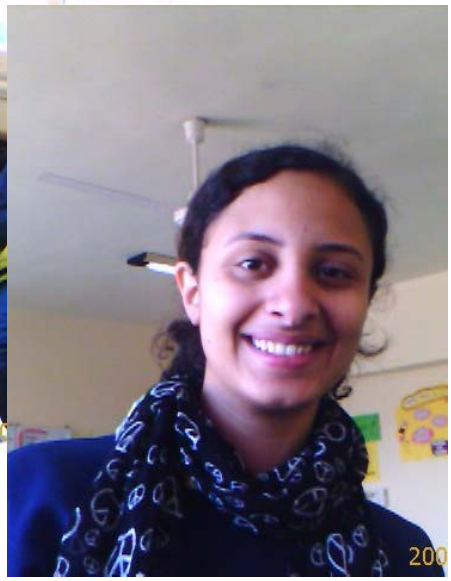
These are some previous SAT Exam questions that cover the part we studied together you are requested to do them at home and repeat the solution many time so that you reach to the maximum speed you can do because the time limits of the exam gives you about 40 seconds for each questions (that means 40 seconds under pressure or 30 seconds at home or school without pressure)
Good luck don't waste time and start practice now…..
Mr. Ayman Elsangary

.







1- It is a branch of Biology, which studies the inheritance of characteristics from parents to offspring,
   - Genetics
   - Embryology
   - Physiology
   - Psychology

2- Why did Mendel choose pea plant?
   - It grows easily
   - It gives new offspring in a short time
   - It is hermaphrodite so it can do self or cross-pollination.
   - All the above

3- A living organism that gives large number of offspring is:
   - Rat
   - Man
   - Pea plant
   - Elephant

4- The transfer of pollen grains from the male organ to the female organ of the same flower or another flower in the same plant
   - Self-pollination
   - Cross-pollination
   - pollination
   - Fertilization

5- The transfer of pollen grains from the male organ to the female organ of another plant.
   - Self-pollination
   - Cross-pollination
   - pollination
   - Fertilization

6- From the factors of Mendel's success:
   - He chose clear allelomorphic characters (pink and white flowers).
   - He continued studying the inheritance of the chosen character for more than one generation.
   - He applied quantitative studies (Mathematics) in Biology for the first time.
   - All the above.

7- *Aalternate characters that mean one of them appears on the living organism (the plant either red flowered or white flowered).*
   - Allelomorphic characters
   - Gametes.
   - Dominant
   - Recessive

8- *reproductive cells (sperms and ova in humans, pollen grains and ova in plant) Both of them are called*
   - Allelomorphic characters
   - Gametes.
   - Dominant
   - Recessive

9- When two individuals of one pair of allelomorphic characters are crossed (f_1) caries the dominant character only and (F_2) have two characters in the ratio 3 dominant: 1 recessive. Which is known as:
   - Mendel's first law of segregation
   - Law of independent assortment
   - Morgan's law
   - Law of mutation

10- The external feature of the living organism is termed:
   - Phenotype
   - Genotype
   - Dominant character
   - Recessive character

11- Contents of genes
   - Phenotype
   - Genotype
   - Dominant character
   - Recessive character

12- Gets a symbol due to its 1st letter (in capital).
   - Phenotype
   - Genotype
   - Dominant character
   - Recessive character

13- Gets the same letter as the other one but small.
   - Phenotype
   - Genotype

- Dominant character
- Recessive character

14- If a person carries 2 identical genes so it can be termed as:
- Homozygous
- Pure
- Pure heterozygous
- Pure or homozygous

15- If a person carries one dominant and one recessive gene so it can be termed as:
- Impure
- Heterozygous
- Hybrid
- All the above

16- It means that one of the two Genes of the allelomorphic Characters is 100% dominant (it means that the character appears 100% in the first generation and appears with a ratio of 3:1 in the 2^{nd} generation) or follow Mendel's 1^{st} law
- Complete dominance
- Incomplete dominance
- lack of dominance
- Non of the above

17- Neither one of the two characters are completely dominant over the other but an intermediate character appears in the 1^{st} generation then the 2^{nd} generation will be 1:2:1 one like the male parent, one like the female parent and two like the offspring (an intermediate character)
- Complete dominance
- Incomplete dominance
- lack of dominance
- Non of the above

18- When two homozygous individuals bearing two pairs of allelomorphic characters are crossed, each pair of characters assorted randomly and inherited independently of the other which is known as:
- Mendel’s first law of segregation
- Law of independent assortment
- Morgan's law
- Law of mutation

19- The ratio 9:3:3:1 resembles the ratio
- 3:2
- 3:1

- 3:3
- all the above

20- Samir Wants to sell a Dalmatian dog to Nancy, she wants to be sure that Samir is honest and the dog is pure what do you advice hereto do?
    - Test cross
    - Self cross
    - All the above
    - Non of the above

21- In test cross if the offspring 100% dominate that means the tested individual is
    - pure
    - hybrid
    - non of the above
    - all the above

22- In test cross if the offspring 50%:50% this indicates the tested one is
    - pure
    - hybrid
    - non of the above
    - all the above

23- In a certain plant the yellow flowers are dominant character while white is the recessive character what are the phenotype in F1 and F2 may be produced when 2 individuals one is yellow and the second is white flowered are pollinated giving that the yellow is homozygous
    - 100% - 3:1
    - 50% - 3:1
    - 75% - 3:1
    - 26% - 3:1

24- Black male of rabbits crossed with brown female, they produced 8 individuals, all of them were black which character is dominant
    - Black
    - Brown
    - Non of the above
    - All the above

25- In humans the responsibility of determining the sex of child is referred to:
    - Male
    - Female

- Both male and female
- environment

26- Pea plant has 7 pairs of chromosomes so its pollen grain contains:
- 7 chromosomes
- 14 chromosomes
- 21 chromosomes
- no definite No of chromosomes

27- Pea plant has 7 pairs of chromosomes so in this case
- N=14
- N=7
- N=21
- N=1/2

28- The term haploid or N is given to
- Pollen grains
- Ova
- Sperms
- All the above

29- The stomach cell of the humans contains:
- 46 chromosomes
- 23 chromosomes
- 7 chromosomes
- 14 chromosomes

30- Sudden change in genes will be termed as
- Crossing
- Mutation
- Alternation of generation
- All the above

31- Plasma membrane is found on
- plant cell only
- Animal cell only
- Both animal and plant cell
- Non of the above

32- Cell wall is found on
- plant cell only
- Animal cell only
- Both animal and plant cell
- Non of the above

33- Center of transportation in the cell is:
- Endoplasmic reticulum
- Ribosome

- Mitochondria
- Golgi body

34- Center of protein synthesis in the cell is:
- Endoplasmic reticulum
- Ribosome
- Mitochondria
- Golgi body

35- Center of storage in the cell is:
- Endoplasmic reticulum
- Ribosome
- Mitochondria
- Golgi body

36- Center of energy in the cell is:
- Endoplasmic reticulum
- Ribosome
- Mitochondria
- Golgi body

37- Some cells have no nucleus at all such as
- R B C
- Muscles fibers
- Liver
- Muscles fibers and liver

38- 1- The average microscope having a high- power K objective marked 43X and an ocular marked 10X gives a magnification of

A) 33X
B) 43X
C) 53X
D) 100X
E) 430X

39- In order to admit the proper amount of light, the part of the microscope that should be adjusted is the

A) Course adjustment
B) Fine adjustment
c) Eyepiece
E) Stage

40- The nucleus contains all of the following structures except

A) Mitochondria
B) Chromatin
C) Genes
D) Nucleolus
E) Nucleolus

41- The most abundant substance in protoplasm is
    A) Portion
    B) Fat
    C) Carbohydrate
    D) Water
    E) Minerals
42- The conversion of nonliving material into living protoplasm is known as
    A) Assimilation
    B) Respiration
    C) Reproduction
    D) Absorption
    E) Digestion
43- A cell obtains energy during the process of
    A) Ingestion
    B) Respiration
    C) Irritability
    D) Excretion
    E) Secretion
44- Animal cells do not possess
    A) A cell membrane
    B) A cell wall
    C) Cytoplasm
    D) A nucleus
    E) A unclear membrane
45- An ameba moves by means of
    A) Cilia
    B) Flagella
    C) Pseudo pods
    D) Pseudonyms
    E) Microscopic

1.Thick fur on deer is *not* an example of co-evolution. Why?

a. because thick fur is an adaptation
b. because deer with thick fur live longer
c. because thick fur evolved in response to a cold climate, not in response to other organisms
d. because in the lowlands, where the climate was sunny and warm, deer that did not have thick fur became separated from other deer that did have thick fur

____ 2. An example of a population is
a. all trees in a forest.
b. all maple trees in a forest.
c. all plants in a forest.
d. all animals in a forest.

____ 3. The density of a population is
a. the number of individuals born every year.
b. the proportion of males and females.
c. the number of individuals living in cities.
d. the number of individuals per unit area.

____ 4. Each of the following is an example of a parasite *except*
a. a roundworm in a human's intestine.
b. a cow in a pasture.
c. a tick on a cat.
d. mistletoe on a tree.

____ 5. The relationship between a Canadian lynx and a snowshoe hare is an example of
a. parasite and host.
b. predator and prey.
c. competition.
d. mutualism.

____ 6. In which of the following relationships is neither species harmed?
a. predation
b. competition
c. parasitism
d. commensalism

____ 7. Which of the following populations has a random dispersion?
a. flock of flamingoes
b. pine trees in a pine forest
c. herd of bison
d. solitary snakes in a desert

____ 8. Which of the following would most likely cause a large number of density-independent deaths in a population?
a. winter storms
b. disease-carrying insects
c. predators
d. limited resources

____ 9. Which of the following organisms has the highest reproductive potential?
a. dogs
c. bacteria

b. elephants
d. humans

____10. A species of plant has exponential growth after it is introduced into an area where it has never lived. Which statement best describes exponential growth?
a. Each individual plant grows much larger than usual.
b. The population immediately decreases.
c. Within a few years the population increases dramatically.
d. The species' reproductive potential declines.

____11. The relationship between acacia trees and the ants that live on them is an example of
a. commensalism.
b. mutualism.
c. parasitism.
d. predation.

____12. The number of wild horses per square kilometer in a prairie is the horse populations
a. density.
b. dispersion.
c. size.
d. birth rate.

____13. A female dog's niche includes all of the following *except*
a. fleas that infest the dog.
b. the number of puppies the dog has.
c. how the dog protects its owners.
d. the neighbor's enclosed yard.

____14. If over a long period of time, each pair of adults in a population had only two offspring and the offspring lived to reproduce, the population would
a. grow.
b. shrink.
c. remain the same.
d. disperse randomly.

____15. Which of the following has the greatest effect on reproductive potential?
a. producing more offspring at a time
b. reproducing more often
c. having a longer life span
d. reproducing earlier in life

____16. A true statement about parasitism is that parasites
a. may cause their hosts to become more vulnerable to predators.
b. do not live on or in their hosts' bodies.
c. are always animals and never plants.
d. immediately kill their hosts.

____17. Which of the following is *not* an example of exponential growth?
a. rabbit populations after being introduced to Australia
b. reindeer of the Pribilof Islands after eating most of the lichens
c. a bank account that earns interest
d. mold appearing on bread overnight

____18. The carrying capacity of an environment for a particular species at a particular time is determined by the
a. number of individuals in the species.
b. distribution of the population.
c. reproductive potential of the species.
d. supply of the most limited resources.

____19. Which of the following statements explains why the growth of orchids on the high branches of tropical trees is an example of commensalism?
a. The orchids draw nourishment from the trees.
b. The trees are neither benefited nor harmed.
c. The orchids keep parasites away.
d. The trees receive nutrients from the orchids.

____20. Which of the following statements is *not* correct?
a. Mutualism is a type of symbiosis.
b. Yucca moths and yucca plants have a symbiotic relationship.
c. Symbiosis is a relationship in which two organisms live apart.
d. Coyotes and foxes are competitors because they feed on the same kinds of animals.

____21. Which of the following is one of the main properties used to describe a population?

a. number of individuals
b. color of individuals
c. number of species
d. kind of adaptations

____22. Which of the following statements is correct?
a. An organism's niche is only the part of its habitat that it eats.
b. An organism's habitat is a location.
c. Habitat and niche are the same thing.
d. An organism's niche is outside its habitat.

____23. Competition for food *cannot* occur
a. between two populations.
b. among members of the same population.
c. among populations whose niches overlap.
d. between animals from two different ecosystems.

____24. Which of the following reproductive situations will limit a population's biotic potential?
a. the minimum number of offspring each pair can produce
b. the maximum number of offspring each individual can produce
c. the number of interactions each individual has
d. the size of offspring each individual can produce

____25. The difference between a predator and a parasite is that a predator
a. usually kills and eats its prey.
b. benefits from another organism.
c. lives in or on a host.
d. harms another organism.

Completion
Complete each sentence or statement.

26. A population's _____ is usually described as even, clumped, or random.

27. A robin that does not affect the tree in which it nests is an example of _____.

28. If two species use the same food source at different times, they are _____ competitors.

29. Unlike a predator in relation to its prey, a parasite does not usually _____ its host.

30. The average age at which members of a species reproduce is that species' _____.

31. The maximum number of offspring that each member of a population can produce is the population's _____.

32. The three main properties used to describe a population are _____, _____, and _____.

33. The _____ of an ecosystem for a particular species is the maximum population that the ecosystem can support indefinitely.

34. The amount of food available for wolves in an area determines the ecosystem's carrying capacity for wolves and is a(n) _____ resource for wolves.

35. Members of a species compete indirectly for resources by competing for a(n) _____ and for social dominance.

36. A population's _____ is the number of its members per unit area or per volume.

37. Deaths that are caused by a disease spreading through a population are _____ dependent.

38. A species' _____ includes that species' physical home, the environmental factors necessary for that species' survival, and all its interactions with other organisms.

39. A type of interaction between two species in which both species are harmed is _____.

40. Niche _____ is when each species uses less of the niche than it is capable of using, in order to reduce competition for resources with other species.

41. The organisms in a cow’s stomach have a constant source of food; the organisms help the cow break down and use the grass it eats. This type of relationship is an example of _____.

42. A population’s growth rate is its _____ rate minus its _____ rate.

43. The type of interaction between cats and mice is _____.

44. A liver fluke is a(n) _____ that harms its host as it obtains food.

45. A(n) _____ usually only weakens its host, while a(n) _____ usually kills its prey.

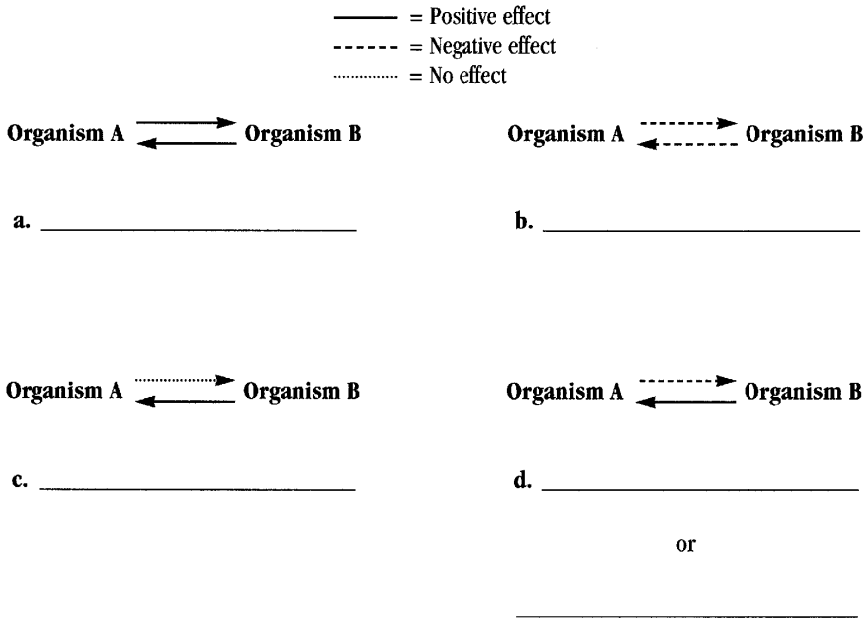
46. A relationship in which two organisms live in close association, such as mutualism and commensalism, is called _____.

47. If a pair of mice finds a place to live with plenty of food and no predators, the population of mice will probably undergo _____ growth.

48. Over a long period of time, two species can develop adaptations that increase the benefit of their relationship in the process of _____.

49. A population has a(n) _____ growth rate when the death rate is higher than the birth rate.

Short Answer



50. The diagrams above show four different types of interactions between species. An arrow pointing from one organism to another means that the first organism has an effect on the second organism. Label each diagram with the correct type of interaction.

51. The cardon and organ-pipe are flowering cacti that depend on bats for pollination. The bats pollinate the cacti as they eat the nectar in cacti's flowers and spread seeds when they eat the cactus fruit. Studies of the cacti show that they are not producing as much fruit as they could. It was also noted that bats living near these cacti had been driven from their cave homes by local villagers. What is the relationship between the bats and the cacti? How did the reduction in the number of bats affect the cacti?

52. Termites live almost exclusively on wood but cannot actually digest it themselves. Instead, they must depend on certain protozoa (single-celled organisms) that live in their gut to break down the wood into nutrients their body can use. In return, the termites provide an appropriate environment to sustain the protozoa. What is the relationship between the termites and the protozoa? How is this relationship similar to the one between humans and intestinal bacteria?

53. If a population of rabbits experiences exponential growth, what might happen to the population of coyote in the area. Explain your reasoning.

54. Predict what might happen to the population of rabbits and coyote if the rabbits exceed the carrying capacity of the environment. Explain your reasoning.

55. Choose any two species with a close relationship that might have coevolved adaptations and describe how the adaptations benefit both species.

56. Construct a table that compares and contrasts a parasite and a predator.

57. Explain how two species can compete for the same resource even if they never come into contact with each other.

58. Choose two populations and compare them in terms of size, density, and dispersion.

59. List three reproductive behaviors of individual members of a species that affect the reproductive potential of a species. Which one of the three behaviors has the greatest effect on reproductive potential?

60. What are three density-dependent causes of death in a population? What are two density-independent causes of death?

61. Choose an organism and give examples of parts of its niche. What is the difference between its niche and its habitat?

62. Give two examples of species that have the same habitat as hawks but different niches.

63. Aphids obtain the nutrients they need by sucking on the juices of host plants. This will later weaken the plants. What type of relationship do aphids and their host plants have? Explain your answer.

Problem

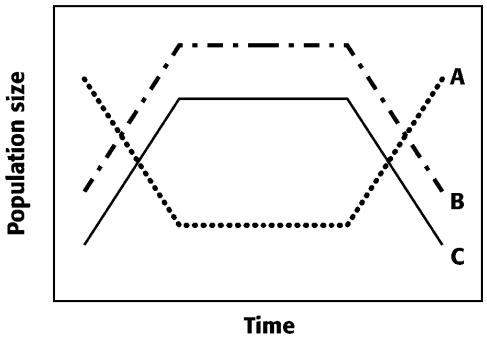
64. Zebra mussels were accidentally imported to the Great Lakes from Europe in the 1980s. (They were stowaways on cargo ships.) These small mollusks have no natural enemies in the United States. Zebra mussels multiply quickly and attach themselves permanently to anything—fish, boats, rocks, pipes, buoys, or other zebra mussels! Huge water intake pipes for cities have been clogged, channel markers sunk, and marine engines damaged by the mussels. How could zebra mussels be eliminated from the Great Lakes?

65. Viruses are the cause of many infectious diseases, such as common colds, flu, and chickenpox. Viruses can be passed from one person to another in many different ways. Under what conditions do you think viral diseases will spread most rapidly between humans? What can be done to slow the spread of these viruses?

Essay

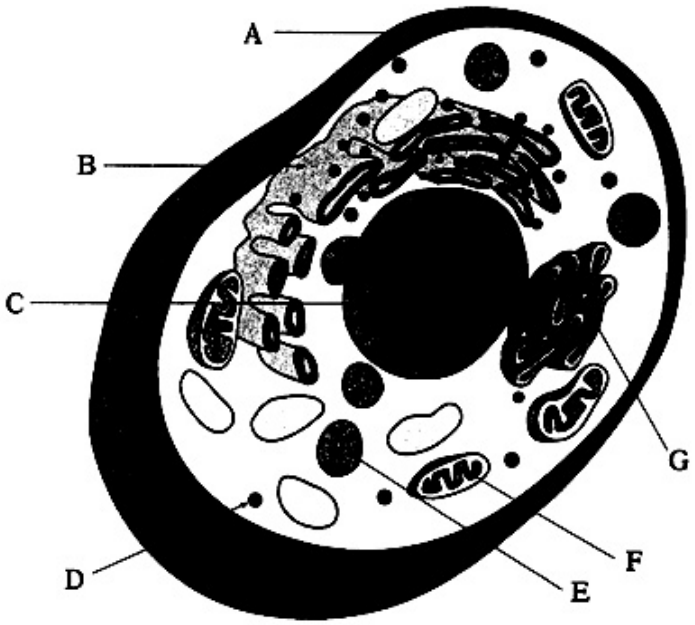
66. Imagine that one species no longer exists, or becomes extinct, immediately after the extinction of another species. Which relationship did the two species more likely have, competition or commensalism? Explain your reasoning.

Population Size of A, B, and C Over Time



67. Examine the graph above. Each line represents a different species. What type of interaction could be occurring between species A and B? Between B and C? Explain the reasoning behind each of your answers.

Questions 95–100

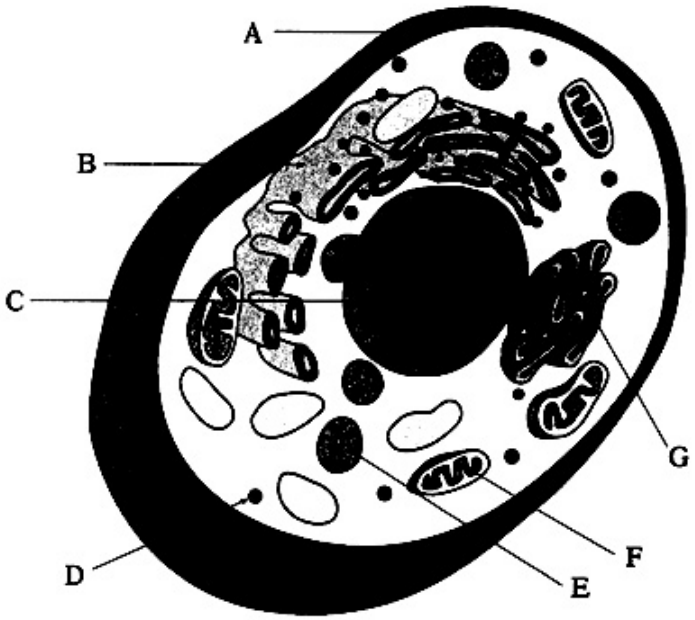


100. This cell is most likely an animal cell because it

(A) has a cell membrane
(B) lacks a cell wall
(C) has mitochondria
(D) lacks a nucleus
(E) has a plasmid

1.

Questions 95–100

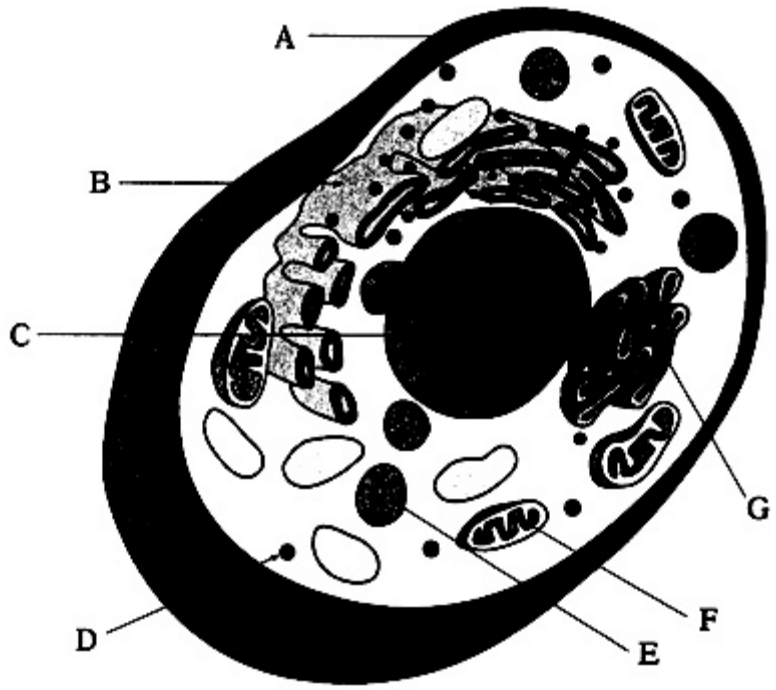


99. Structure F in this cell functions to

(A) breakdown food molecules
(B) produce energy
(C) replicate DNA
(D) assemble proteins
(E) remove waste products

2.

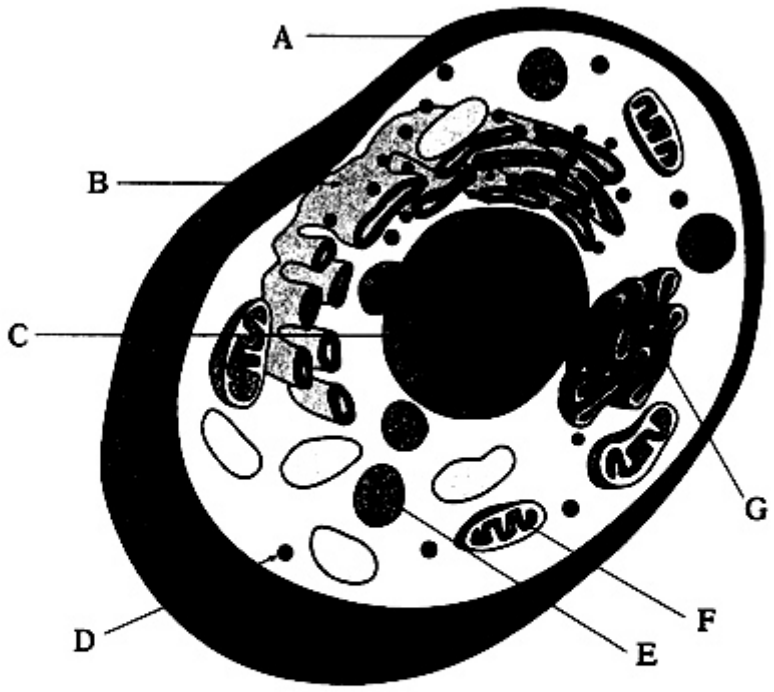
Questions 95–100



98. Structure E contains digestive enzymes used by the cell. This structure is a

(A) ribosome
(B) vacuole
(C) nucleolus
(D) lysosome
(E) mitochondria

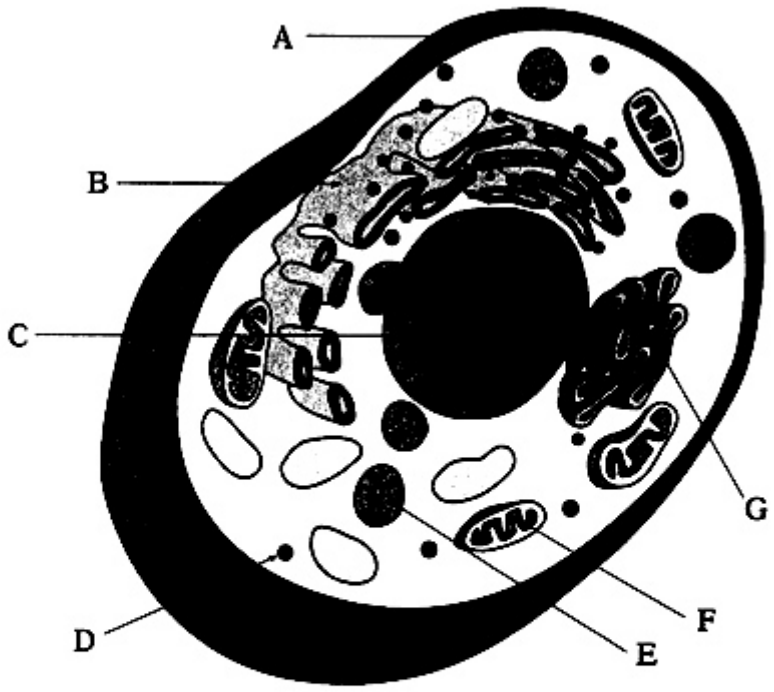
Questions 95–100



97. Structure G is the

(A) ribosome
(B) mitochondria
(C) chloroplast
(D) endoplasmic reticulum
(E) Golgi apparatus

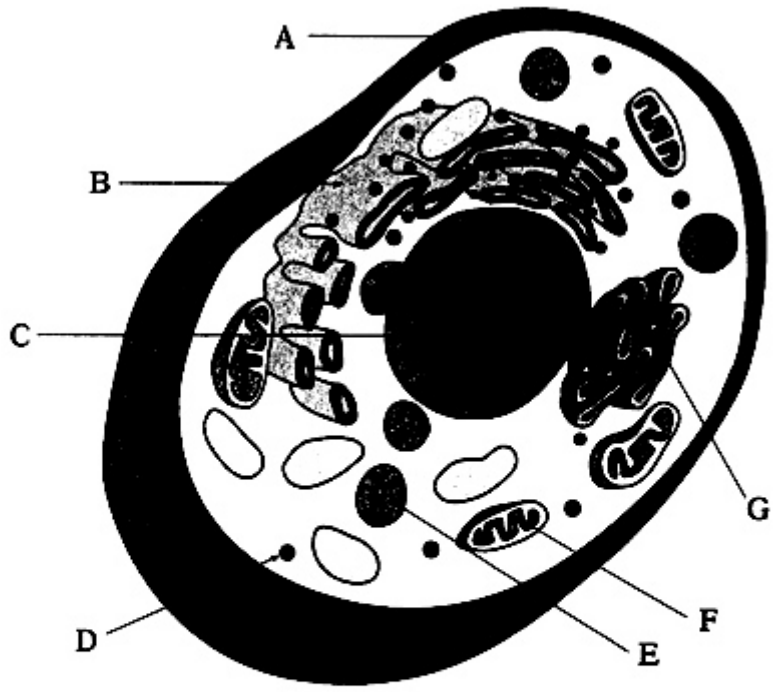
Questions 95–100



96. In eukaryotes, the chromosomes are found in structure

(A) A
(B) B
(C) C
(D) D
(E) E

Questions 95–100



95. Which structure best identifies this cell as a eukaryote?

(A) A
(B) B
(C) C
(D) D
(E) E

86. Most cells in an animal are surrounded by

(A) air
(B) water
(C) blood
(D) synovial fluid
(E) interstitial fluid

Questions 66-68

(A) Rough endoplasmic reticulum
(B) Mitochondria
(C) Nucleus
(D) Lysosomes
(E) Cell membrane

68. Contains cell's genetic information

Questions 66-68

(A) Rough endoplasmic reticulum
(B) Mitochondria
(C) Nucleus
(D) Lysosomes
(E) Cell membrane

67. Digest foreign substances and worn organelles

Questions 66-68

(A) Rough endoplasmic reticulum
(B) Mitochondria
(C) Nucleus
(D) Lysosomes
(E) Cell membrane

66. Site of ATP production

Questions 62–65:

(A) nucleus
(B) endoplasmic reticulum
(C) ribosomes
(D) Golgi apparatus
(E) lysosome

65. this consists of RNA and proteins and helps to translate mRNA during polypeptide synthesis

Questions 62–65:

(A) nucleus
(B) endoplasmic reticulum
(C) ribosomes
(D) Golgi apparatus
(E) lysosome

64. membrane-bound organelle that contains the chromosomes

Questions 62–65:

(A) nucleus
(B) endoplasmic reticulum
(C) ribosomes
(D) Golgi apparatus
(E) lysosome

63. membrane-bound organelle full of hydrolytic enzymes

Questions 62–65:

(A) nucleus
(B) endoplasmic reticulum
(C) ribosomes
(D) Golgi apparatus
(E) lysosome

62. membrane-bound convoluted organelle that is the site of synthesis of secreted proteins

15. A cooperative unit of many cells with similar form and function is known as a(n)

(A) tissue
(B) tissue system.
(C) organ.
(D) organ system.
(E) cell system.

2. Which of the following statements about cell structure is NOT correct?

(A) Plant cells have cell walls, whereas animal cells do not.
(B) Ribosomes are the main sites of energy production for the cell
(C) Plant cells have chloroplasts, whereas animal cells do not
(D) Lysosomes function in the digestion of cellular waste products
(E) Many cellular organelles are inter-related through an endomembrane system.

1. Which of the following statements about mitochondria is NOT correct?

(A) They serve as sites for cellular respiration.

(B) They are enclosed by a double membrane.

(C) They are the sites where most of the cell's ATP is produced.

(D) They are found in animal cells only; plant cells have chloroplasts instead.

(E) They are found in eukaryotic cells but not in prokaryotic cells.

36. According to the cell theory, which of the following statements is correct?

(A) All organisms are made up of one or more cells.

(B) All organisms must be able to reproduce.

(C) Cells have organelles to carry on their functions.

(D) Cells evolved from a primordial soup on early Earth.

(E) Cells are able to regulate their external environment.

20. The rigid shape of plant cells is due to the

(A) cell membrane

(B) cell wall

(C) cytoskeleton

(D) microtubules

(E) centrioles

39. Which of the following best describes what will happen if cells are placed in a very salty solution?

(A) The cells remain unchanged.
(B) Water moves from inside of the cell to the outside.
(C) Water moves from outside of the cell to the inside.
(D) The cells burst.
(E) The cells dissolve.

Questions 12–15

(A) organ
(B) cell
(C) tissue
(D) organ system

15. The highest level of organization that carries out important body functions

Questions 12–15

(A) organ
(B) cell
(C) tissue
(D) organ system

14. Many different groups of cells working together

Questions 12–15

(A) organ
(B) cell
(C) tissue
(D) organ system

13. Small unit of organization

Questions 12–15

(A) organ
(B) cell
(C) tissue
(D) organ system

12. Group of cells with a similar function

Questions 1–4

(A) ribosome
(B) mitochondria
(C) chloroplast
(D) endoplasmic reticulum
(E) Golgi apparatus

4. Packaging and distribution system of a cell

Questions 1–4

(A) ribosome
(B) mitochondria
(C) chloroplast
(D) endoplasmic reticulum
(E) Golgi apparatus

3. Powerhouse of the cell

Questions 1–4

(A) ribosome
(B) mitochondria
(C) chloroplast
(D) endoplasmic reticulum
(E) Golgi apparatus

2. Extensive series of membranes throughout the cell

Questions 1–4

(A) ribosome
(B) mitochondria
(C) chloroplast
(D) endoplasmic reticulum
(E) Golgi apparatus

1. Site where photosynthesis takes place

Questions 71–73.
Base your answers on the following two chemical reactions.

1) maltose + water $\xrightarrow{A}$ glucose + B

2) fat + water $\xrightarrow{C}$ glycerol + fatty acids

71. Letter A most likely represents

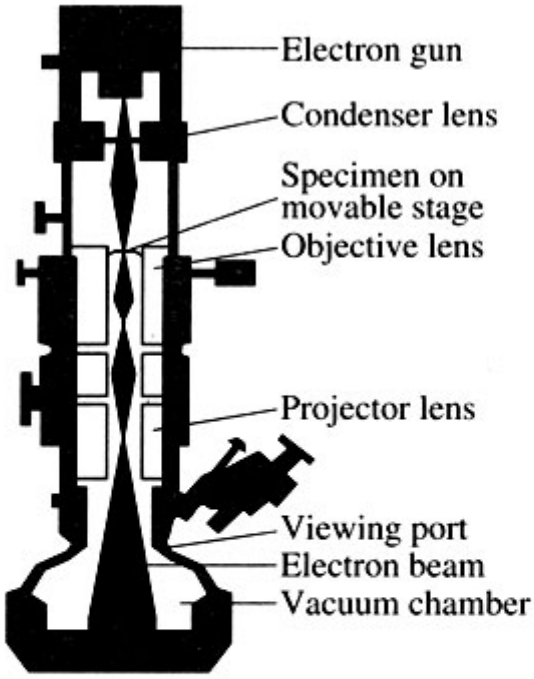
(A) a hormone
(B) a neurotransmitter
(C) an organic catalyst
(D) an amino group
(E) a carboxyl group

33. Which of the following represents the correct sequence of events that occurs within a cell during mitosis?

I. The chromosomes migrate to opposite poles of the cell.
II. The nuclear membrane disappears.
III. The chromosomes line up along the equator of the cell.
IV. The chromatids of each chromosome separate.

(A) I, II, III, IV
(B) I, II, IV, III
(C) II, III, I, IV
(D) II, III, IV, I
(E) III, IV, II, I

ELECTRON MICROSCOPE



32. In the instrument shown above, which of the following serves as the energy source for the formation of the image?

(A) Vacuum chamber
(B) Condenser lens
(C) Projector lens
(D) Specimen
(E) Electron gun

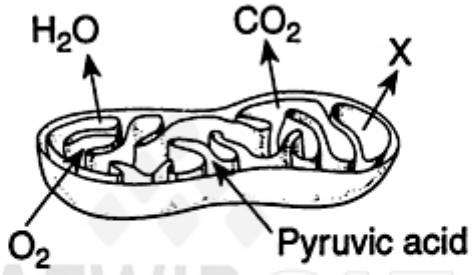
27. **Which of the following cellular organelles contains hydrolytic enzymes?**

(A) Ribosomes
(B) Golgi apparatus
(C) Mitochondria
(D) Lysosomes
(E) Vacuoles

99. Which of the following organelles is out of order from an endomembrane point of view?

(A) nucleus
(B) vesicles
(C) golgi apparatus
(D) endoplasmic reticulum
(E) plasma membrane

Questions 13–14 refer to the following diagram.

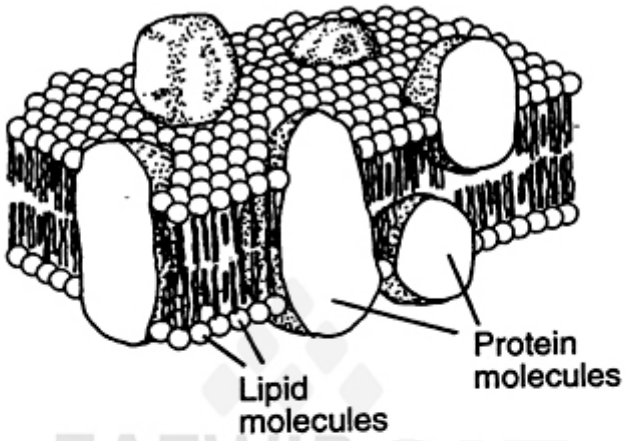


14. Letter X most likely represents

(A) the stroma.
(B) the matrix.
(C) the thylakoid space.
(D) the grana.
(E) none of the above.

12. One would expect to find steroid hormone receptors in the

(A) plasma membrane.
(B) endoplasmic reticulum.
(C) nucleus.
(D) cytosol.
(E) none of the above.



11. Which cell structure is represented in the drawing above?

(A) plasma membrane
(B) chloroplast
(C) endoplasmic reticulum
(D) golgi apparatus
(E) mitochondrion

16. Which of the following statements about mitochondria is (are) true?

(A) Mitochondria exist in all eukaryotes.
(B) Mitochondria exist in bacteria and plants.
(C) Mitochondria exist in animals, plants, and fungi.
(D) Both (B) and (C) are true.
(E) Both (A) and (C) are true.

Questions 1–3 refer to the following cellular structures:

(A) ribosome
(B) nucleus
(C) chloroplast
(D) mitochondria
(E) endoplasmic reticulum

3. Structure that contains the codes for the specific proteins produced by a cell.

Questions 1–3 refer to the following cellular structures:

(A) ribosome
(B) nucleus
(C) chloroplast
(D) mitochondria
(E) endoplasmic reticulum

2. Structure that functions as the site of protein synthesis in cells.

Questions 1–3 refer to the following cellular structures:

(A) ribosome
(B) nucleus
(C) chloroplast
(D) mitochondria
(E) endoplasmic reticulum

1. Structure found in plant cells but not animal cells.

32. Which statement about the plasma membrane is false?

(A) It serves as a selectively permeable barrier to the external environment.
(B) It serves as a mediator between the internal and external environments.
(C) In eukaryotes, it contains the cytochrome chain of oxidative phosphorylation.
(D) It contains phospholipids as a structural component.
(E) It contains proteins that in some cases span the membrane.

24. In adult humans, red blood cells

(A) have no nucleus
(B) are replaced in the liver
(C) are outnumbered by white blood cells in the circulatory system
(D) are made in the spleen
(E) are the sites of rapid protein synthesis

30. Which of the following organelles would be present in a eukaryote but NOT in a prokaryote?

I. Nucleus
II. Mitochondria
III. Ribosome

(A) I only
(B) II only
(C) I and II only
(D) II and III only
(E) I, II, and III

87. Which of the following structures is present in the nucleus of a cell?

(A) mitochondrion
(B) ribosome
(C) endoplasmic reticulum
(D) chromatin
(E) centriole

23. Which of the following is a correct association?

(A) mitochondria: transport of materials form the nucleus to the cytoplasm
(B) Golgi apparatus: modification and glycosylation of proteins
(C) endoplasmic reticulum: selective barrier for the cell
(D) ribosomes: digestive enzymes most active at acidic pH
(E) lysosomes: membrane-bound organelles that convert fat into sugars

4. What is the function of a lysosome's membrane?

(A) It isolates an acidic environment for the lysosome's hydrolytic enzymes from the neutral pH of the cytoplasm.
(B) It is continuous with the nuclear membrane, thereby linking the lysosome with the endoplasmic reticulum.
(C) It is used as an alternative site of protein synthesis.
(D) The cytochrome carriers of the electron transport chain are embedded within it.
(E) It separates the nucleus from the cytoplasm.

Questions 58–60

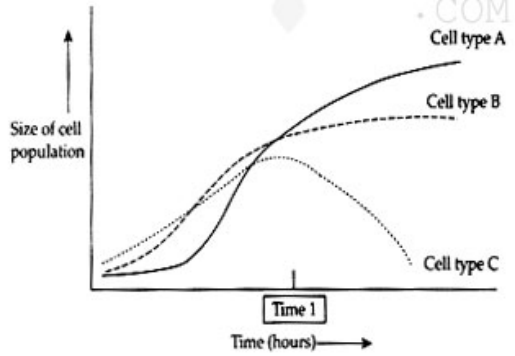
Three different cell types were observed under the microscope. The observations are summarized in Table 1.

Table 1

Cell type	Nucleus?	Cell wall?	Chloroplasts?
A	No	Yes	No
B	Yes	Yes	No
C	Yes	Yes	Yes

The three cell types were grown in separate cultures with plenty of oxygen and nutrients available. Figure 1 shows their rates of growth. At Time 1, oxygen was no longer available to the cells.

Figure 1



60. Consider Figure 1. Which of the following statements best describes the reason for the difference between the curves for cell Type B and cell Type C?

(A) cell Type B is unable to survive in the presence of oxygen, while cell Type C can ferment
(B) the products of fermentation in cell Type C are toxic to the cells and they are dying
(C) cell Type B is an obligate aerobe while cell Type C is able to ferment
(D) cell Type B is a facultative anaerobe, while cell Type C is an obligate aerobe
(E) cell Type C is an obligate aerobe, while cell Type B is an obligate anaerobe

Questions 58–60

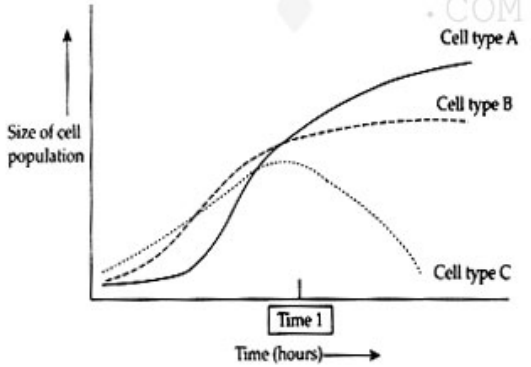
Three different cell types were observed under the microscope. The observations are summarized in Table 1.

Table 1

Cell type	Nucleus?	Cell wall?	Chloroplasts?
A	No	Yes	No
B	Yes	Yes	No
C	Yes	Yes	Yes

The three cell types were grown in separate cultures with plenty of oxygen and nutrients available. Figure 1 shows their rates of growth. At Time 1, oxygen was no longer available to the cells.

Figure 1



59. Which of the following equations is cell Type C able to run?

I. $C_6H_{12}O_6 + 6\,O_2 \rightarrow 6\,CO_2 + 6\,H_2O + ATP$
II. H_2O + light $\rightarrow O_2 + ATP + NADPH$
III. $6\,CO_2 + 6\,H_2O + ATP + NADPH \rightarrow C_6H_{12}O_6$

(A) I only
(B) II only
(C) I and III only
(D) II and III only
(E) I, II, and III

Questions 58–60

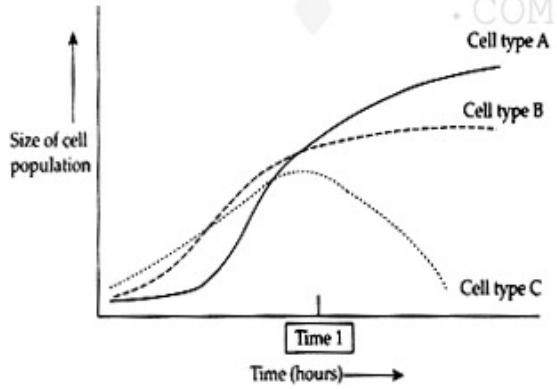
Three different cell types were observed under the microscope. The observations are summarized in Table 1.

Table 1

Cell type	Nucleus?	Cell wall?	Chloroplasts?
A	No	Yes	No
B	Yes	Yes	No
C	Yes	Yes	Yes

The three cell types were grown in separate cultures with plenty of oxygen and nutrients available. Figure 1 shows their rates of growth. At Time 1, oxygen was no longer available to the cells.

Figure 1



58. Based on the information in Table 1, which of the following is the most likely classification of cell Type A?

(A) fungi
(B) plant
(C) bacteria
(D) animal
(E) protist

Questions 1–3

(A) mitochondria
(B) cytoplasm
(C) pyruvate
(D) lactic acid
(E) glucose

1. Location of cellular respiration in prokaryotes.

84. What structure is common to ALL cell types?

(A) Chloroplast
(B) Plasma membrane
(C) Cell wall
(D) Mitochondria
(E) Flagella

3.