

Standard 1 Objective 1 Summarize how energy flows through an ecosystem

44 Question(s)
Test ID: 2142483945

Name: _____

Date: _____

- 1) Which of the following statements best describes the work done by decomposers?
 - A. They provide calcium for plants by taking it from the soil or water
 - B. They release carbon from dead bodies in the form of carbon dioxide
 - C. They create new sources of oxygen and release free nitrogen
 - D. They prevent the escape of energy to outer space
- 2) In a food chain, which trophic level would have the greatest amount of available energy?
 - A. First
 - B. Second
 - C. Third
 - D. Fourth

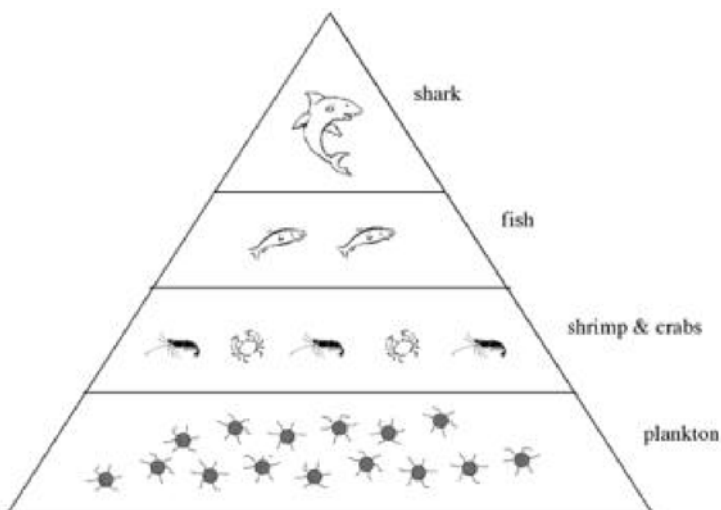
- 3) The next question refers to the food chain pictured below. Choose the word or phrase that best completes the statement or answers the question.



Suppose 100,000 units of energy are available at the level of the grasses. What is the total number of energy units lost by the time energy becomes available to the hawk?

- A. 99,000
 - B. 99,900
 - C. 900
 - D. 90
- 4) Which of the following is a complete and correctly organized food chain?
 - A. alfalfa --> grasshopper --> cow --> bot fly --> barn swallow
 - B. barley --> aphid --> ladybird beetle
 - C. grass --> grasshopper --> warbler --> praying mantis
 - D. algae --> fish --> coyote --> snake
 - E. aspen --> bacteria --> grasshopper --> warbler
- 5) Which of these describes a pathway of energy through the living system?
 - A. Light energy --> chemical energy --> heat
 - B. Light energy --> heat --> chemical energy
 - C. Heat --> light energy --> chemical energy
 - D. Chemical energy --> heat --> light energy
- 6) Which organisms are most immediately necessary for the survival of primary consumers?
 - A. Producers
 - B. Decomposers
 - C. Secondary consumers
 - D. Tertiary consumers
- 7) Which of the following statements is true regarding ecosystems?
 - A. Ecosystems support a larger number of heterotrophs than autotrophs
 - B. The presence or absence of carnivores has a greater effect on ecosystems than the presence or absence of producers
 - C. There are more organisms in the third trophic level than in the second trophic level
 - D. The number of organisms decreases at each level of a food chain in an ecosystem
- 8) What happens to the amount of available energy at each level of a food chain?

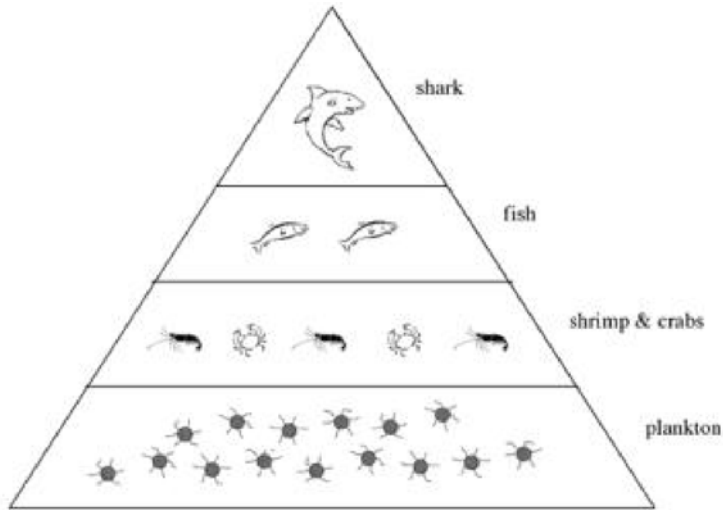
- A. The amount of available energy increases at each level
 B. The amount of available energy decreases at each level
 C. The amount of available energy remains the same at each level
 D. The amount of available energy changes depending on the number of organisms in the level
- 9) What would you predict might happen in an ecosystem if the number of organisms in the third trophic level exceeded the number of organisms in the second trophic level?
- A. Nothing would change
 B. The number of organisms in the second trophic level would increase
 C. The number of organisms in the third trophic level would continue to increase
 D. The number of organisms in the third trophic level would decrease
- 10) In a food chain, which trophic level would contain the greatest number of organisms?
- A. First
 B. Second
 C. Third
 D. Fourth
- 11) Which statement most accurately describes what happens to energy as it moves through an ecosystem?
- A. It is used up by the time it reaches the third trophic level
 B. It is returned to the environment in the form of heat
 C. It increases as it moves through each level of the food chain
 D. Each organism uses 50% of the energy and stores 50% to be used by other organisms
- 12) In order to construct your own food web, what information do you need to know?
- A. how many organisms of each species
 B. where the organisms live
 C. how long they have lived
 D. what the organisms consume
- 13) In areas of southern California where humans have heavily hunted sea lions, killer whales (which normally hunt sea lions) are preying on sea otters. Which statement best describes why killer whales are hunting sea otters?
- A. Sea otters are now easier to locate, hunt and kill than sea lions
 B. Sea otters provide more nourishment than killer whales
 C. Sea lions have evolved adaptations that protect them from killer whales
 D. Killer whales prefer sea otters over sea lions
- 14) Marmots hibernate when temperatures fall below 15.5 degrees Celsius. During hibernation, marmots breathe very slowly, circulation of blood is reduced, body temperature drops, and they are able to survive on their own reserves of fat. Which statement best describes the main adaptive advantage of hibernation?
- A. Temperatures in the forest drop too low for the marmot to survive the winter
 B. Hibernation allows the marmots' bodies to recover from the stress of summer
 C. Many predators are active during the winter; hibernation allows the marmot to avoid being eaten
 D. Food sources are scarce in the winter; the marmot would expend debilitating amounts of energy trying to obtain food
- 15) The next question refers to the diagram below. Choose the letter of the word or phrase that best completes the statement or answers the question.



Suppose 12,970 kilocalories of energy were available to the organisms at the bottom level of the diagram. How many kilocalories of energy would be available to the organisms at the third level?

- A. 129.7
- B. 12.97
- C. 1.297
- D. 1,297

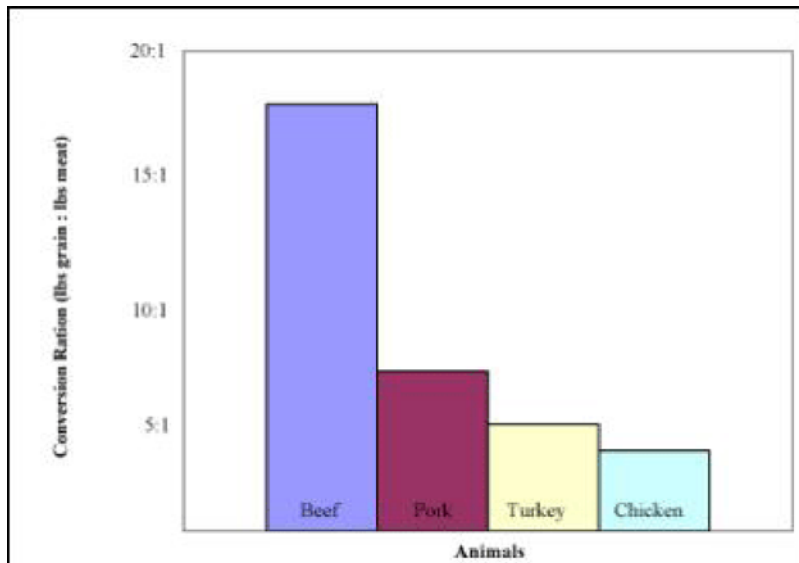
16) The next question refers to the diagram below. Choose the letter of the word or phrase that best completes the statement or answers the question.



The diagram is an example of

- A. Food chain pyramid
- B. Energy pyramid
- C. Biomass triangle
- D. Biomass pyramid

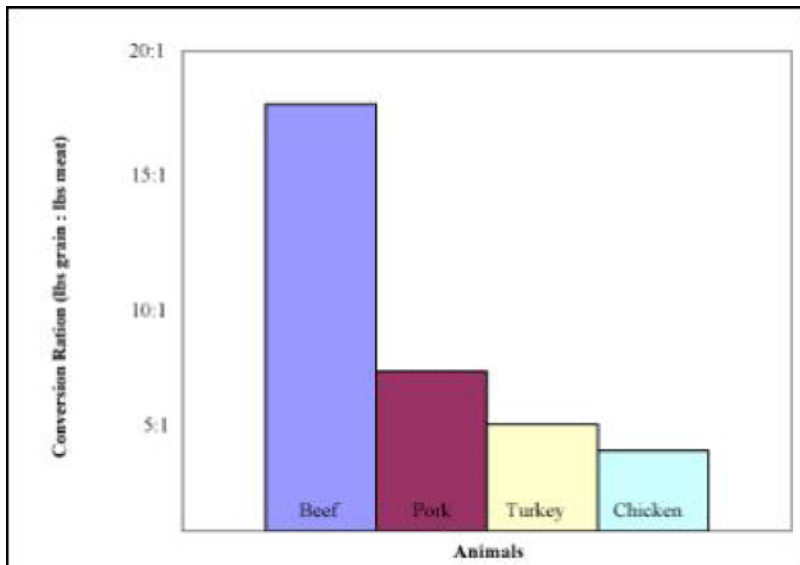
17) Use the graph to answer the following question.



Since grain and soy are often in limited supply and carry environmental consequences to produce, how can we best conserve the Earth's resources and still have enough protein to feed people?

- A. increase the amount of poultry and beef produced
- B. decrease the amount of beef and increase the amount of pork produced
- C. decrease the amount of beef and increase the amount of poultry produced
- D. increase the amount of beef and decrease the amount of poultry produced

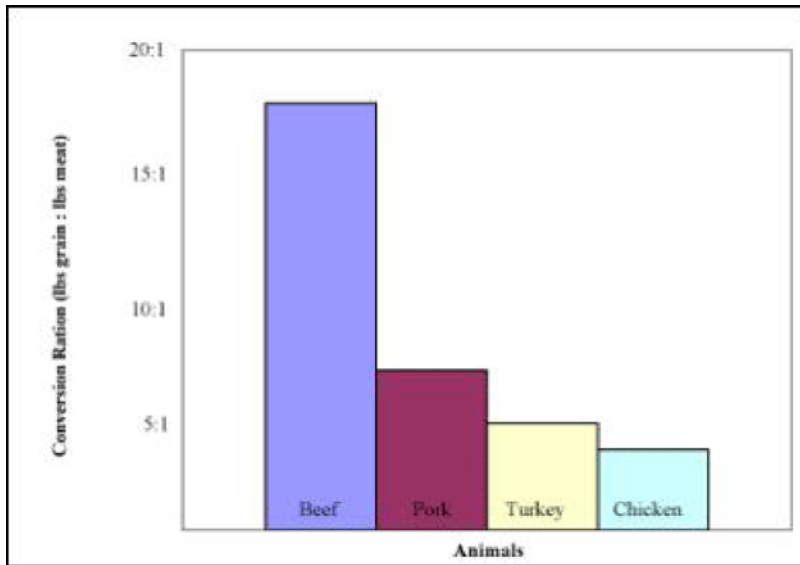
18) Use the graph to answer the following question.



Under optimum conditions, catfish can actually convert two pounds of feed into one pound of meat. Which position would catfish occupy if we included them in this graph?

- A. to the left of beef
- B. between beef and pork
- C. between pork and turkey
- D. between turkey and chicken
- E. to the right of chicken

19) Use the graph to answer the following question.



Which animal is the least efficient at converting feed into food for humans?

- A. turkeys
- B. pigs
- C. chickens
- D. cattle

- 20) TDN is a commonly used measurement of energy in feed for farm animals. The higher % TDN the more energy is in the feed. Look at the table of TDN in these feeds.

Feed Type	TDN	Cost of Feed
Corn	75%	\$110 per ton
Barley	70%	\$100 per ton
Oats	60%	\$135 per ton
Alfalfa hay	50%	\$80 per ton
Grass hay	40%	\$60 per ton

Which feed will produce the least growth per dollar spent?

- A. corn
 - B. barley
 - C. oats
 - D. alfalfa hay
 - E. grass hay
- 21) TDN is a commonly used measurement of energy in feed for farm animals. The higher % TDN the more energy is in the feed. Look at the table of TDN in these feeds.

Feed Type	TDN	Cost of Feed
Corn	75%	\$110 per ton
Barley	70%	\$100 per ton
Oats	60%	\$135 per ton
Alfalfa hay	50%	\$80 per ton
Grass hay	40%	\$60 per ton

Which feed would be the most economical to maintain a mature cow?

- A. corn
 - B. barley
 - C. oats
 - D. alfalfa hay
 - E. grass hay
- 22) TDN is a commonly used measurement of energy in feed for farm animals. The higher % TDN the more energy is in the feed. Look at the table of TDN in these feeds.

Feed Type	TDN	Cost of Feed
Corn	75%	\$110 per ton
Barley	70%	\$100 per ton
Oats	60%	\$135 per ton
Alfalfa hay	50%	\$80 per ton
Grass hay	40%	\$60 per ton

Assuming that all feeds are digested equally well, which feed will produce the fastest growth?

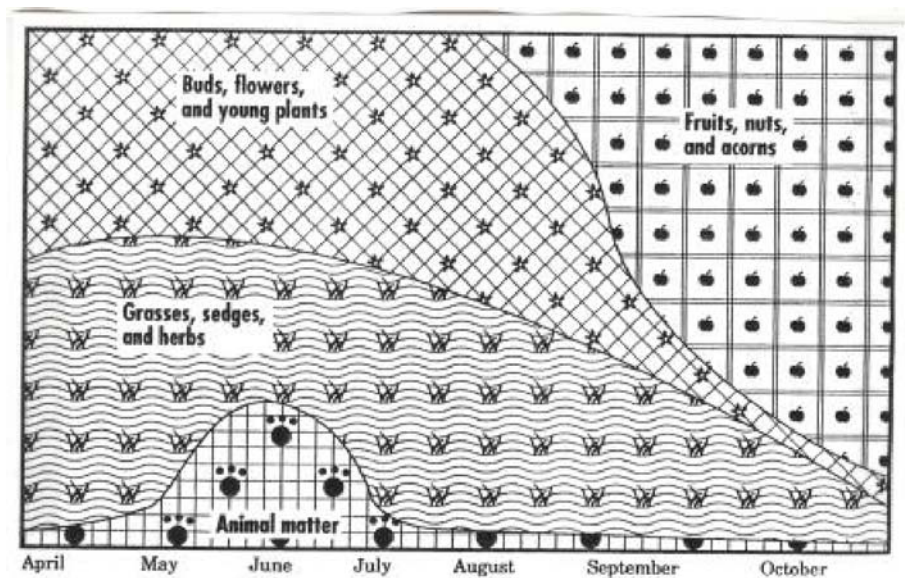
- A. corn
- B. barley
- C. oats
- D. alfalfa hay
- E. grass hay

- 23) TDN is a commonly used measurement of energy in feed for farm animals. The higher % TDN the more energy is in the feed. Look at the table of TDN in these feeds.

Feed Type	TDN	Cost of Feed
Corn	75%	\$110 per ton
Barley	70%	\$100 per ton
Oats	60%	\$135 per ton
Alfalfa hay	50%	\$80 per ton
Grass hay	40%	\$60 per ton

Which feed is the best buy for energy in terms on monetary costs per unit of energy?

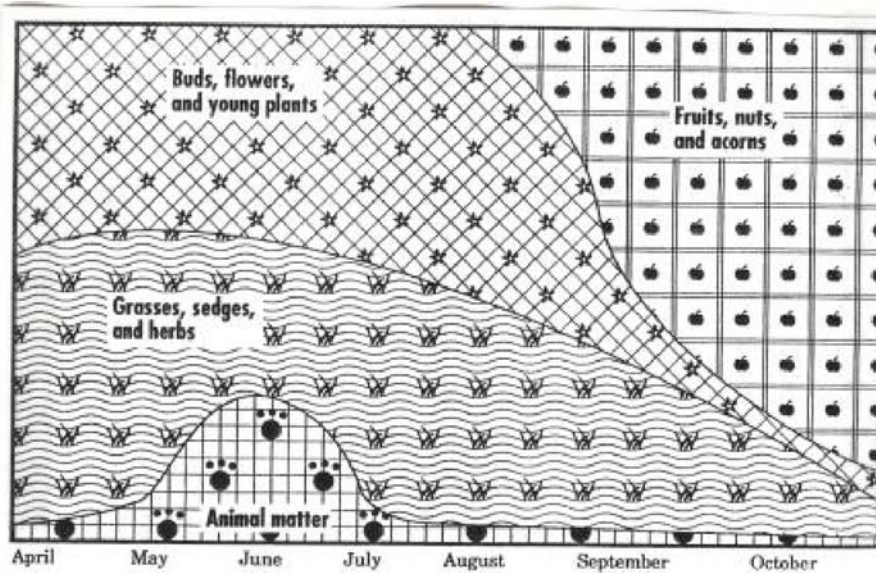
- A. corn
 B. barley
 C. oats
 D. alfalfa hay
 E. grass hay
- 24) The next question refers to the diagram of the diet of black bears in Arizona. Choose the word or phrase that best completes the statement or answers the question.



Which statement best describes how bears obtain energy?

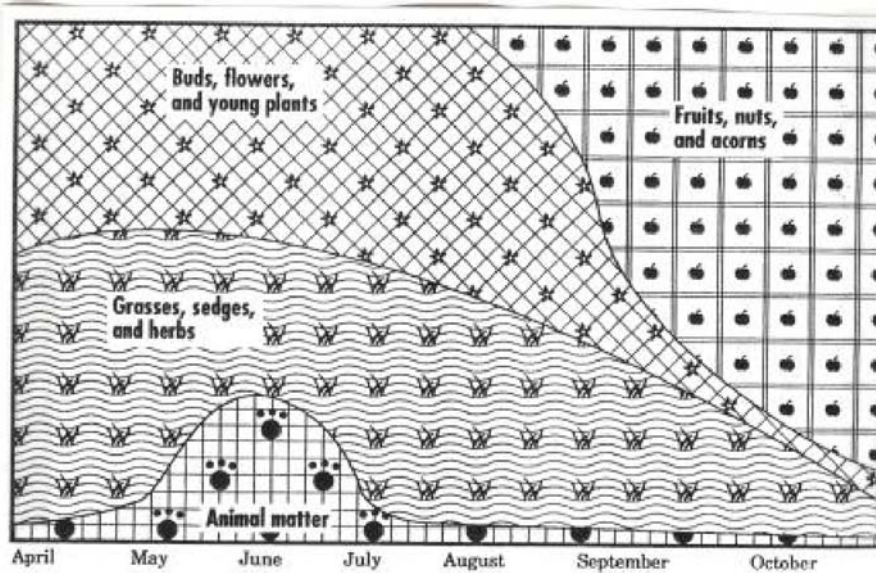
- A. Bears only eat certain foods in each season
 B. Bears will selectively search for only those foods that fulfill their nutritional requirements
 C. Bears prefer foods that are high in protein, but will eat other foods
 D. Bears eat a variety of foods based on what is most readily available

- 25) The next question refers to the diagram of the diet of black bears in Arizona. Choose the word or phrase that best completes the statement or answers the question.



Which statement best explains why the bears' diet changes from spring to summer?

- A. Bears prefer animal matter
 - B. Animal matter is more readily available in the summer, but not in the spring
 - C. Fruit is available in the summer
 - D. All the grasses, sedges, and herbs die out in the summer
- 26) The next question refers to the diagram of the diet of black bears in Arizona. Choose the word or phrase that best completes the statement or answers the question.



Which food source is used the most during the fall season?

- A. Animal matter
- B. Grasses, sedges, and herbs
- C. Fruits, nuts, and acorns
- D. Buds, flowers, and young plants

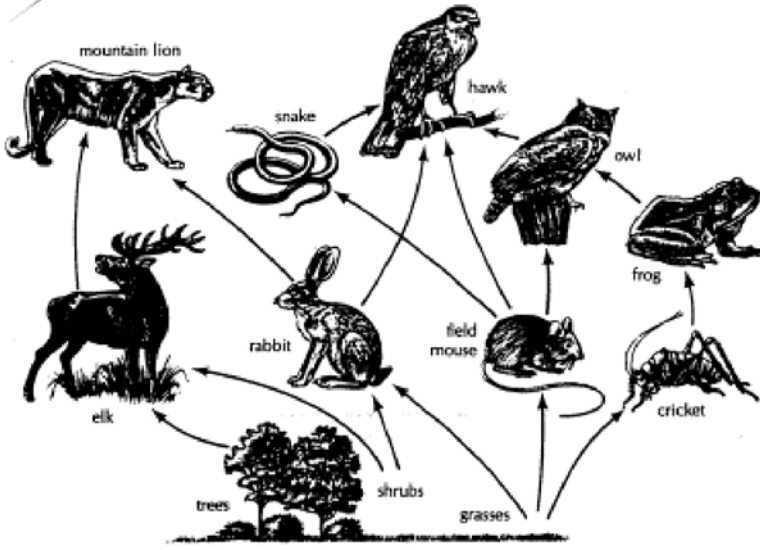
27) The next question refers to the food chain pictured below. Choose the word or phrase that best completes the statement or answers the question.



As matter and energy move from grasses to hawks, the amount of available energy

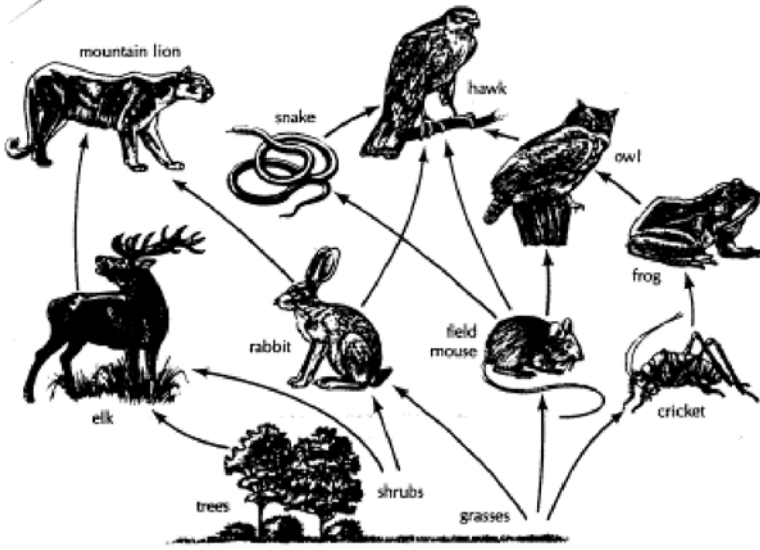
- A. always decreases but population size at each level may increase or decrease
- B. always increases but population size at each level always decreases
- C. always decreases and population size at each level always decreases
- D. increases or decreases but population size remains the same

28) In the food web, which level will be found in greatest numbers?



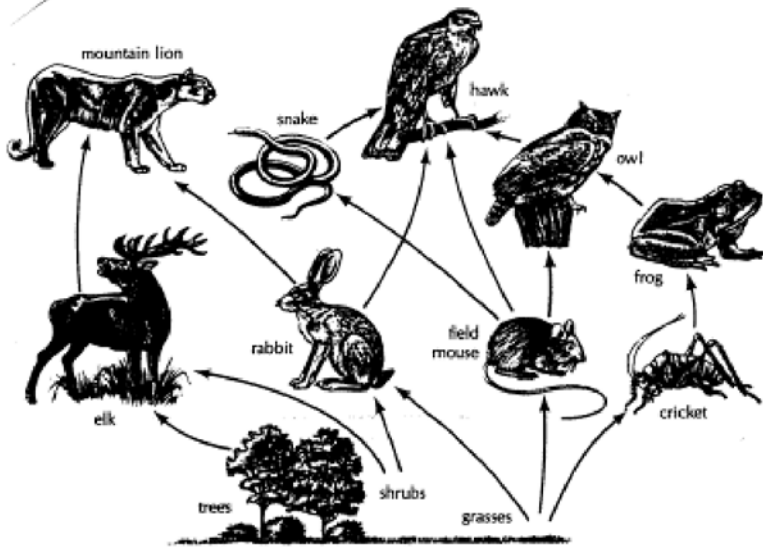
- A. producers
- B. level 1 consumers
- C. level 2 consumers
- D. level 3 consumers

29) Which of the following appear to be level 2 consumers?



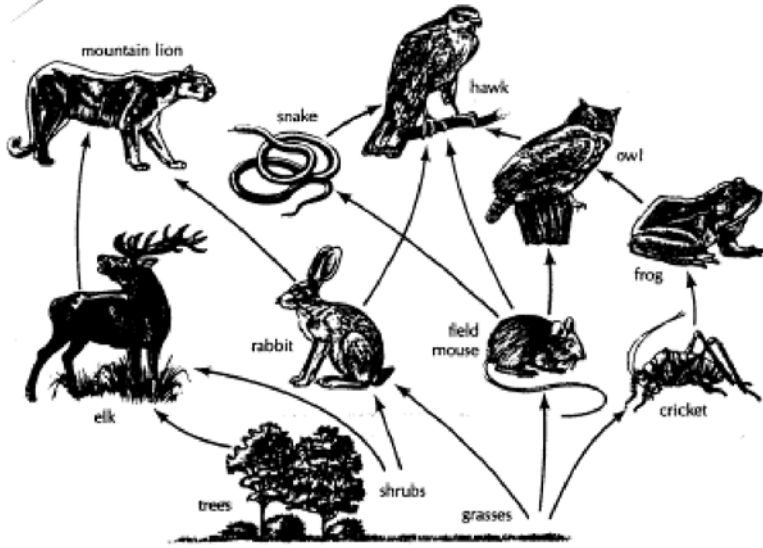
- A. elk, rabbit, cricket
- B. mountain lion, snake, hawk
- C. owl, frog, cricket
- D. elk, mountain lion, rabbit

30) Which of the following appears to be a third level consumer?



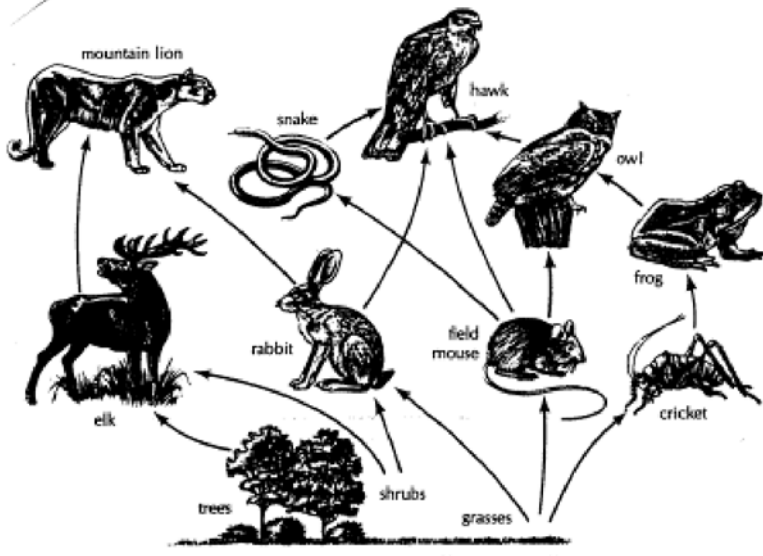
- A. mountain lion
- B. elk
- C. frog
- D. hawk

31) Which level will be found in least numbers?



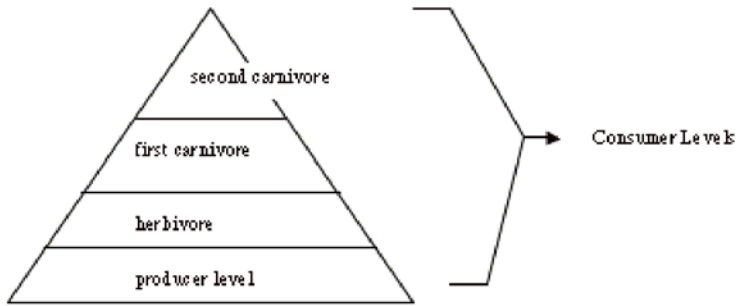
- A. producers
- B. level 1 consumers
- C. level 2 consumers
- D. level 3 consumers

32) At which level will the least energy be available?



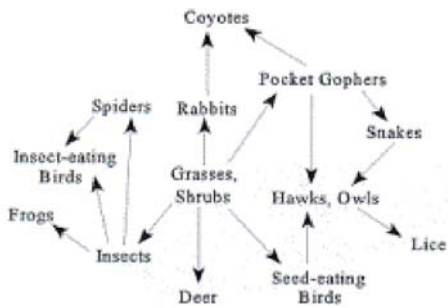
- A. producers
- B. level 1 consumers
- C. level 2 consumers
- D. level 3 consumers

33) The algae now blooming in the pond occupy which level?



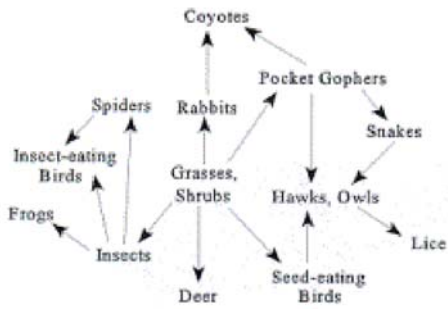
- A. second carnivore
- B. first carnivore
- C. herbivore
- D. producer

34) In this food web, the hawk would be a third-level consumer if he ate



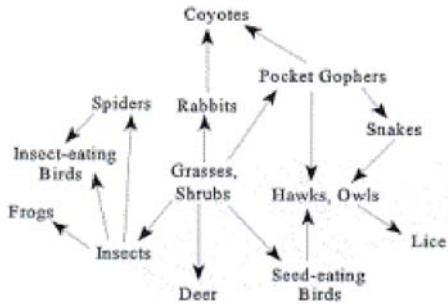
- A. Seed-eating birds
- B. Pocket gophers
- C. Rabbits
- D. Snakes

35) In terms of numbers of individuals, you would expect to find more



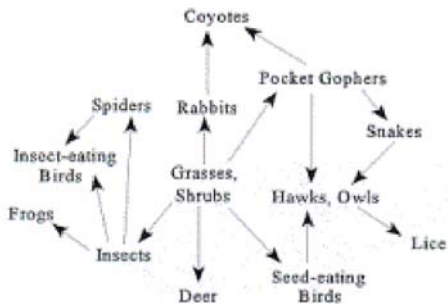
- A. Snakes than gophers
- B. Frogs than insects
- C. Insects than insect-eating birds
- D. Coyotes than rabbits

36) The best examples of primary consumers would be



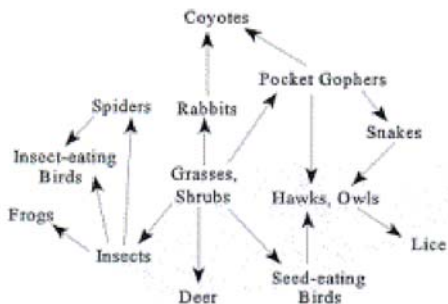
- A. Insects and seed-eating birds
- B. Rabbits and owls
- C. Gophers and frogs
- D. Insects and spiders

37) Snakes and spiders are best classified as



- A. Producers
- B. Primary consumers
- C. Second-level consumers
- D. Third-level consumers

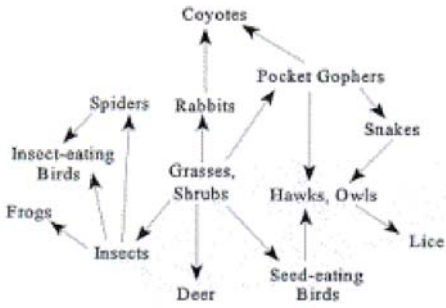
38) The role of the shrubs and grasses in the food web is best described as



- A. An animal shelter
- B. A source of seeds
- C. A source of energy

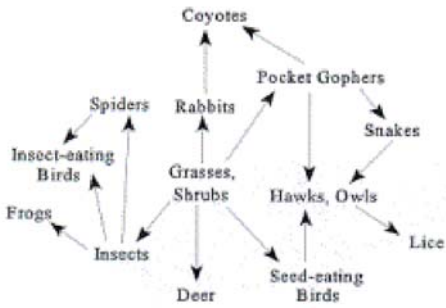
D. A place for nests

39) As diagrammed a fourth-level consumer is represented by the



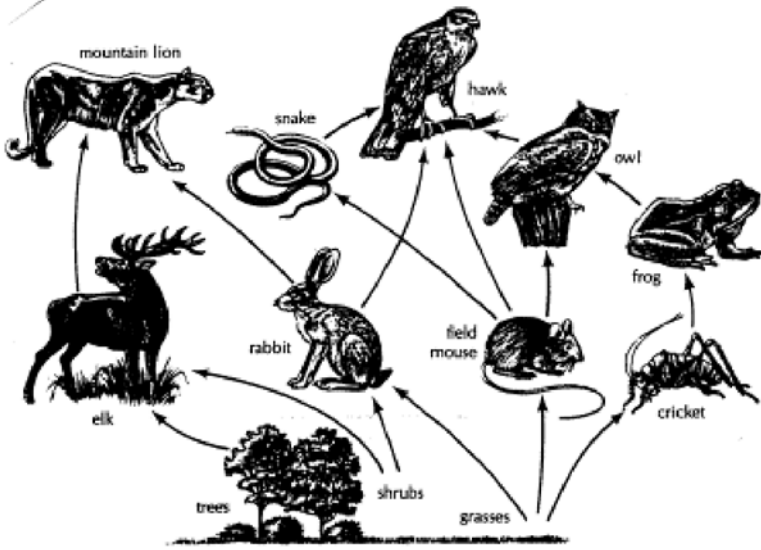
- A. Lice
- B. Hawks
- C. Snakes
- D. Frogs

40) The total weight of all the organisms in the group would be the greatest for



- A. Mice
- B. Rabbits
- C. Grass
- D. Decomposers

41) At which level will the most energy be available?



- A. producers
- B. level 1 consumers
- C. level 2 consumers
- D. level 3 consumers

42) Science is a way of knowing which is based on evidence and logic. However, it is not the only way of knowing about our world. Which of the following problems is NOT addressed by science?

- A. Why predators switch to eating different prey.
- B. The quantity of energy found in a specific food pyramid.
- C. Why humans litter along the roadside.
- D. The migration patterns of hummingbirds.

- 43) Which answer best describes the future of our knowledge about sustainable agriculture, practices which help farmers to replenish the nutrients in the soil, control the weeds and pests, and prevent erosion?
- A. Knowledge about sustainable agriculture will probably stay the same since small family farms are just about all gone.
 - B. Knowledge about sustainable agriculture will probably decrease since the large farm conglomerates have solved soil fertility problems.
 - C. Knowledge about sustainable agriculture will probably stay the same since scientists have probably learned everything necessary about soil composition.
 - D. Knowledge about sustainable agriculture will probably change since new technology will provide better information about the soil.
- 44) Scientists have discovered that some plants, like beans or alfalfa, have bacteria that grow with their roots and which are able to take nitrogen from the air and put it into the soil. Plants are then able to use the nitrogen as fertilizer. How can a gardener use this information?
- A. The gardener can rotate crops annually to help replenish nutrients like nitrogen in the soil.
 - B. The gardener can add nitrogen to the soil and does not need to worry about what type of crops are planted.
 - C. The gardener should stop planting beans which add bacteria to the soil, causing contamination.
 - D. Farmers can take nitrogen out of the air like the bacteria do and fertilize their crops.

