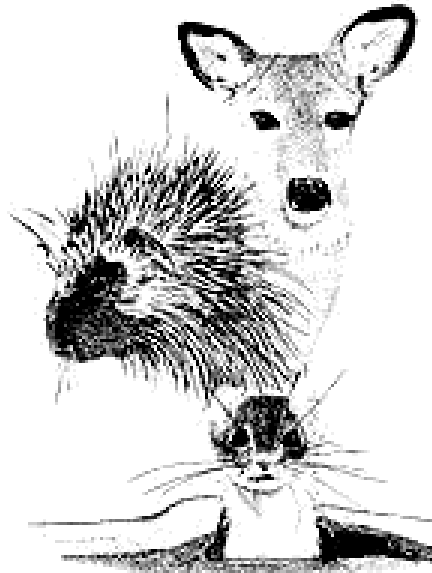


Examination

Booklet for Prospective
Maine
Wildlife Rehabilitators



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A. MAINE AND FEDERAL REGULATIONS

A-1. Which of the following is the only animal a wildlife rehabilitator with a state permit is authorized to care for without a special federal permit:

- a. river otter b. baby seal c. sea turtle d. robin
a. *Seals and sea turtles require special federal permits, as do all native migratory (and most nonmigratory) bird species.*

A-2. A Maine state wildlife rehabilitation permit allows the rehabilitator to:

- a. keep a nonreleaseable bat as an education animal
 b. keep a nonreleasable skunk as an exhibition animal
 c. keep orphaned raccoons for two years to give them a better start
 d. none of the above
d. *Animals kept for educational or exhibition purposes are covered by different regulations, not by the rehabilitation permit. Young animals must be released at the very earliest, biologically appropriate opportunity. On rare occasions, this may mean keeping an animal over one winter, but certainly not for two years.*

A-3. If you admit a bald eagle, you must always contact:

- a. a newspaper c. your veterinarian
 b. the police d. the nearest Regional Headquarters of ME IF&W
d.

A-4. A wildlife rehabilitator is required to submit an annual report of all animals handled, listed by species. Which of the following is an unacceptable identification?

- a. sea gull b. red fox c. starling d. gray squirrel
a. *There are many species of gulls, some common, some rare, but none are named "sea" gull. Correct identification is important.*

A-5. Birds such as ravens, mourning doves, crows, etc. that are present in Maine year-round are not migratory; therefore, a federal permit is not required to rehabilitate them. (T/F)

False. *Although these birds may not be "migratory" by biological definition, federal regulations define "migratory" birds as all species covered by international treaty. Generally, this includes all native birds in the U.S. except the nonmigratory game species (such as quail and turkey) that are managed by states.*

A-6. In the state of Maine, wildlife rehabilitators must:

- a. be at least 16 years of age c. pass a written examination with a score of 80% or greater
 b. reside in Maine d. all of the above
d.

A-7. A wildlife rehabilitation permit is valid for a one-year period from Jan. 1 to Dec. 31. (T/F)

False. *The permit is valid for a two-year period.*

A-8. Wildlife rehabilitators must submit an annual report of activities for the preceding calendar year no later than: (T/F)

- a. January 1 b. January 31 c. July 1 d. December 25
b.

A-9. Starlings, English (or house) sparrows and pigeons (rock doves) are unprotected exotic species that may be kept or treated without a federal wildlife rehabilitation permit. (T/F)

True.

A-10. A wildlife rehabilitation permit may be revoked or not renewed if the rehabilitator:

- a. keeps permanently crippled animals as pets
- b. keep animals in conditions that do not meet the NWRA/IWRC minimum standards
- c. refuses to transfer or surrender an animal when directed to do so by ME IF&W
- d. all of the above

d.

A11. The primary intent of a wildlife rehabilitation permit is to allow qualified people to provide care to sick, injured, orphaned or displaced wildlife so that they may be returned to the wild. (T/F)

True.

A-12. For a wildlife rehabilitator who does not have a federal rehabilitation permit, which of the following species may be kept for treatment?

- a. crow
 - b. bald eagle
 - c. turkey
 - d. robin
- c.** *Federal permits are required only for native migratory birds (as defined by the Migratory Bird Treaty Act), marine mammals and reptiles and endangered species. Individual states govern nonmigrating game birds such as turkeys.*

A-13. Someone holding a state wildlife rehabilitation permit, but no federal permits, can rehabilitate which of the following animal groups?

- a. terrestrial mammals
 - b. native migratory birds
 - c. marine mammals
 - d. sea turtles
- a.** *Federal permits are required for migratory birds, marine reptiles and mammals, and endangered species.*

A-14. Rehabilitators may accept donations, but it is illegal to charge a fee for rehabilitating wildlife. (T/F)

True.

A-15. Wildlife rehabilitators may not carry out any veterinary procedures. (T/F)

False. *Rehabilitators often are trained by their veterinarians to perform simple laboratory procedures such as detecting parasites in fecal samples.*

A-16. Animals that die while being cared for by a wildlife rehabilitator may be given to a museum or some other educational institution holding proper permits. (T/F)

True.

A-17. It is necessary to have the proper state permits and/or federal permits before handling or maintaining wildlife. (T/F)

True.

A-18. One of the requirements for becoming a rehabilitator in Maine is that a person must be at least 18 years of age. (T/F)

False. *16 years of age*

A-19. In addition to a state wildlife rehabilitation permit, a federal permit from the U.S. Fish and Wildlife Service is required before migratory birds (and most nonmigratory birds), may be rehabilitated. (T/F)

True.

A-20. According to the regulations governing rehabilitators, you must submit a biannual report of your activities. (T/F)

False. *An annual report is due on, or before, January 31 of the following year.*

A-21. You must consult licensed veterinarians as necessary to ensure proper care is administered to injured or debilitated wildlife. (T/F)

True.

A-22. As a wildlife rehabilitator in Maine, you may charge a fee for the care and feeding of distressed wildlife you receive from the public. (T/F)

False. *However, you may accept voluntary donations.*

A-23. Authorized ME IF&W personnel may inspect a rehabilitator's facility and records at any reasonable time. (T/F)

True.

A-24. A wildlife rehabilitator in Maine is required by law to prominently display the permit issued by ME IF&W. (T/F)

False. *However, the permit must be shown to a warden or any other enforcement officer who requests it. Although not required to do so by law in Maine, many rehabilitators choose to display their permits so that members of the public who bring in animals can be assured (without having to ask) of the rehabilitator's legal status.*

A-25. It is all right to tame animals in rehabilitation, as long as they are released in a place where the rehabilitator can continue to care for them. (T/F)

False. *Maine regulations (and common sense) dictate that every measure shall be taken to prevent wildlife dependency on humans.*

A-26. Wildlife rehabilitation is the practice of providing care for injured or debilitated wildlife, including their rescue, housing, feeding, emergency treatment and release to the wild. (T/F)

True.

A-27. Housing conditions for wild animals in rehabilitation are completely at the discretion of the rehabilitator. (T/F)

False. *Rehabilitation activities, including housing, must meet minimum standards as published by NWRA and IWRC.*

A-28. A wildlife rehabilitator may exhibit wildlife held pursuant to his/her wildlife rehabilitator permit. (T/F)

False. *The wildlife rehabilitator permit only authorizes the permittee to provide care for wildlife. Wildlife in rehabilitation may not be exhibited under any permit. However, a qualified person may apply for a permit to collect or possess, which allows the exhibition of wildlife.*

A-29. A permit-holding wildlife rehabilitator must submit a completed wildlife rehabilitation report, or before, January 31, annually. (T/F)

True.

A-30. Endangered and threatened species may not be rehabilitated under a wildlife rehabilitation permit. (T/F)

False. *A permittee must notify the nearest Regional Headquarters of ME IF&W within 48 hours of the acquisition of any endangered or threatened species. A permitted wildlife rehabilitator is not prohibited from rehabilitating endangered or threatened species, but may be asked by IF&W to transfer the animal to a different facility.*

A-31. A wildlife rehabilitator permit in Maine allows the permittee to rehabilitate and release rabies-vector species such as bats, raccoons and foxes. (T/F)

True.

A-32. A veterinary license authorizes a veterinarian to rehabilitate and release distressed wildlife. (T/F)

False. *Veterinarians may treat wildlife during the acute care stage. However, they must obtain a wildlife rehabilitation permit to rehabilitate and release distressed wildlife.*

A-33. The State of Maine owns all wildlife in Maine. (T/F)

True. *The "ownership" of wildlife is vested in the state, in its sovereign capacity, for the benefit of all the public.*

A-34. The Maine wildlife rehabilitation permit is sufficient to allow the permittee to rehabilitate migratory (and most nonmigratory) birds. (T/F)

False. *A federal, special purpose rehabilitation permit and a Maine state wildlife rehabilitator permit are required before a person may rehabilitate migratory (and most nonmigratory) birds.*

A-35. A permitted wildlife rehabilitator may accept distressed wildlife from states outside Maine. (T/F)

True. *Rehabilitators who live near the New Hampshire state line, for example, may be closer to a caller than the nearest facility in NH*

A-36. A permitted wildlife rehabilitator may give a distressed raptor to a licensed falconer to fly the bird as part of the bird's rehabilitation program. (T/F)

False. *A licensed falconer must be a permitted wildlife rehabilitator in order to receive a raptor for rehabilitation purposes.*

A-37. Animals that die or are euthanized while held under the authorization of a wildlife rehabilitator permit may be used as food for other wildlife held by the rehabilitator. (T/F)

True. *However, despite being acceptable from a legal perspective, this practice is almost never advisable biologically. Animals that have been euthanized with drugs contain chemicals that may be fatal if consumed by another animal. In addition, this is a good way to transmit parasites and diseases to other patients. Legally, these dead animals may also be donated to an individual who has a valid permit to possess such animals, or they may be buried or incinerated.*

B. ENDANGERED SPECIES

B-1. Which of the following is on the federal list of endangered species?

- a. song sparrow b. short-eared owl c. eastern cougar d. bald eagle
c.

B-2. Which of the following is listed as endangered species in Maine?

- a. piping plover b. sedge wren c. golden eagle d. all of the above
d.

B-3. When you admit an endangered species, you must notify ME IF&W within 48 hours. (T/F)

True.

B-4. Which type of duck is listed as threatened in Maine?

- a. mallard b. harlequin c. wood d. ruddy
b.

B-5. Bald eagles are no longer on the federal list of endangered species, but they still are listed as endangered in Maine. (T/F)

False. *Bald eagles are listed as threatened in Maine.*

B-6. Which of the following turtles is endangered in Maine?

- a. Blanding's turtle b. spotted turtle c. loggerhead turtle d. painted turtle.
a. *Spotted and loggerhead turtles are threatened species; painted turtles are fairly common.*

B-7. Milk snakes are endangered in Maine. (T/F)

False. *The only snake species listed as endangered in Maine is the black racer.*

C. TAXONOMY, IDENTIFICATION, AND ECOLOGY

Mammals

C-1. Which of the following is strictly carnivorous?

- a. raccoon b. deer c. opossum d. weasel
d.

C-2. Woodchucks:

- a. are herbivores c. have three litters annually
 b. live in large colonies like prairie dogs d. make extensive runways under the snow
a.

C-3. Which of the following is an omnivore?

- a. opossum b. white-tailed deer c. woodchuck d. bobcat
a. *White-tailed deer and woodchucks are herbivores. The bobcat is a carnivore.*

C-4. Most raccoons are born in June and July. (T/F)

False. *Although some are certainly born at this time, most are born earlier in the spring.*

C-5. Which of the following is/are herbivore(s)?

- a. big brown bat b. striped skunk c. porcupine d. all of the above
c. *Bats are insectivores and skunks are omnivores.*

C-6. Raccoons, skunks and opossum are mammals that are omnivores, which means they have highly specialized diets. (T/F)

False.

C-7. In mammals, what type of feeding group always has long canines and sharp incisors for tearing animal tissue?

- a. omnivores b. herbivores c. carnivores d. insectivores
c.

C-8. In mammals, what type of feeding group has sharp canine teeth and flat-surfaced molars for grinding food?

- a. carnivores b. omnivores c. herbivores d. insectivores
b.

C-9. Which mammalian group has molar teeth for grinding but no sharp canines?

- a. insectivores b. carnivores c. omnivores d. herbivores
d.

C-10. A raccoon has omnivorous and opportunistic food habits. (T/F)

True. *The raccoon and opossum are classic omnivores, but so are American robins, bears and skunks. Opportunistic means that they will eat whatever they can find.*

C-11. At approximately what age do young raccoons' eyes open?

- a. 7 days b. 14 days c. 21 days d. 30 days
c.

C-12. What is the average number of young to which a female raccoon gives birth?

- a. 2 b. 4 c. 6 d. 8
b.

C-13. At approximately what age are raccoons fully weaned in the wild?

- a. 2 months b. 4 months c. 6 months d. 9 months
b.

C-14. Raccoons are true hibernators in the winter. (T/F)

False. *Raccoons are "winter sleepers." Compared with true hibernators (such as woodchucks), they do not reduce body temperature as much, and are more easily aroused.*

C-15. Striped skunks are omnivorous animals. (T/F)

True.

C-16. Skunks are primarily crepuscular animals (are most active around dawn and dusk). (T/F)

True. *Nocturnal animals are most active at night. Diurnal animals are most active during the day.*

C-17. Striped skunks are active chiefly during the day. (T/F)

False.

C-18. At approximately what age are young skunks fully weaned?

- a. 2 weeks b. 3 weeks c. 7 weeks d. 9 weeks
c.

C-19. Young skunks are not able to spray. (T/F)

False.

C-20. Generally, in Maine, cottontails give birth during:

- a. Jan. – Feb. b. March – May c. May – July d. Aug. – Sept.
b.

C-21. Newborn cottontail rabbits are blind, feeble and nearly devoid of hair. (T/F)

True. *An altricial mammal or bird is one that is born (or emerges from the egg) without much fur or feathering, is blind and totally dependent on its parents.*

C-22. Newborn snowshoe hares have their eyes open, are fully furred and able to walk or hop within one or two days. (T/F)

True. *These types of young animals are termed precocial.*

C-23. Young cottontail rabbits are fully weaned at approximately what age?

- a. 2 weeks b. 4 weeks c. 6 weeks d. 8 weeks
b.

C-24. Mother cottontail rabbits remain on their nests with their young most of the day, only leaving long enough to eat. (T/F)

False.

C-25. When frightened, cottontail rabbits might:

- a. emit a loud, piercing scream c. pretend to have a broken leg
b. play dead d. all of the above
a.

C-26. Which of the following mammals is not a rodent?

- a. beaver b. deer mouse c. cottontail rabbit d. flying squirrel
c. *Although similar in many ways, rabbits are not rodents (order Rodentia). They are lagomorphs (order Lagomorpha).*

C-27. Which of the following statements about opossums is false?

- a. usually live for over eight years in the wild
b. the newborn are blind and the size of honey bees
c. the young stay in the pouch for about 12 weeks
d. adults are omnivorous

a. *In most areas, opossums live only 2-3 years. Because they are marsupials, the young are very tiny and undeveloped when born. They crawl into the mother's pouch, attach to a nipple and remain for about 8-9 weeks. At this time they begin sticking their heads out and exploring. They are independent at about 12-13 weeks of age.*

C-28. At approximately what age do young opossums begin leaving the pouch?
 a. 2 weeks b. 4 weeks c. 2 1/2 months d. 6 months
c.

C-29. Opossums are primarily nocturnal mammals. (T/F)
True.

C-30. Opossums are North America's only marsupial. (T/F)
True.

C-31. A female opossum can have over seven babies at a time. (T/F)
True.

C-32. At approximately what age are gray squirrels fully weaned in the wild?
 a. 1 month b. 2 months c. 3 months d. 4 months
b.

C-33. At approximately what age do young gray squirrels' eyes open?
 a. 1-2 weeks b. 2-3 weeks c. 4-5 weeks d. 6-7 weeks
c.

C-34. Newborn gray squirrels are naked and blind at birth. (T/F)
True.

C-35. At approximately what age are white-tailed deer fawns fully weaned in the wild?
 a. 1 month b. 2 months c. 4 months d. 6 months
c.

C-36. Red foxes are found statewide and can adapt to living in suburban areas. (T/F)
True.

C-37. Porcupines have:
 a. quills that can be "thrown" by the porcupine with a vigorous shake of its tail
 b. poisonous quills
 c. good eyesight
 d. barbed quills that can work themselves deeper into an attacking animal, causing serious injury
d. *Porcupines have poor vision but a good sense of smell. Their quills cannot be thrown and are not poisonous. However, porcupines can move their tails very rapidly to swat attackers.*

C-38. Which of the following animals is a true winter hibernator?
 a. opossum b. red squirrel c. woodchuck d. raccoon
c.

C-39. It is natural for some mammals to leave their young unattended for long periods of time, only returning to feed them. (T/F)
True. *Cottontail rabbits exhibit this behavior.*

C-40. Young beavers leave their parents by the end of their first year. (T/F)

False. *The young stay with the parents for at least two years.*

C-41. Beavers are rodents. (T/F)

True.

C-42. Foxes are most active around mid-day. (T/F)

False. *Foxes are mostly nocturnal; they are active from several hours before dark to several hours after dawn.*

Birds

C-43. Which of the following is not an accipiter type of raptor?

- a. goshawk b. American kestrel c. Cooper's hawk d. sharp-shinned hawk

b. *Accipiters are short-winged, long-tailed woodlands hawks that eat mostly other birds. The American kestrel is a member of the falcon family.*

C-44. An anatomical structure that a hawk has and an owl does not have is:

- a. retractable talons b. a crop c. a cloaca d. an esophagus

b. *The crop is an enlarged area of the esophagus (food tube) located just above where the neck joins the body. The purpose of the crop is for temporary storage of food.*

C-45. An infant bird that is hatched naked, blind and is totally dependent on its parents is an example of:

- a. a precocial bird b. a fledgling bird c. an altricial bird d. a brancher

c.

C-46. An infant bird that is hatched feathered and follows its parents shortly after hatching is an example of:

- a. a precocial bird b. a fledgling bird c. a altricial bird d. a brancher

a.

C-47. What are the most important means of defense for a raptor?

- a. beak and wings b. feet and beak c. wings and feet d. submissive behaviors

b.

C-48. Which of the following groups of birds feed on the wing (in flight) on insects?

- a. flickers and other woodpeckers c. swifts and swallows
b. robins and wood thrushes d. egrets and ibises

c.

C-49. Which of the following birds migrates each fall?

- a. common raven c. great horned owl
b. common nighthawk d. all of the above

b.

C-50. A fledgling bird is a feathered juvenile, out of the nest, but is inexperienced as a flyer and forager. (T/F)

True.

C-51. Which of the following birds does not migrate in the fall?

- a. chimney swift
 - b. Eastern phoebe
 - c. tree swallow
 - d. none of the above (they are all migratory birds)
- d.**

C-52. The term "fledgling" refers to a bird that:

- a. is still in the egg
 - b. has closed eyes and is unfeathered
 - c. is out of the nest and able to fly short distances
 - d. has full flight abilities
- c.**

C-53. You have just received a very young bird. Which factor would probably not help you identify it:

- a. type of feet
 - b. mouth color
 - c. shape of beak
 - d. length of tail feathers
- d.**

C-54. "Raptor" is the correct term for what has popularly but improperly been called a:

- a. songbird
 - b. seabird
 - c. bird of prey
 - d. perching bird
- c.** *"Raptor" is a term derived from "raptorial" feet, i.e., feet with talons specialized for seizing and killing animal prey. Used correctly, the term "bird of prey" would refer to any bird that eats other animals, including invertebrates (a robin, for example, is a bird of prey).*

C-55. Loons overwinter in open coastal waters of the gulf of Maine. (T/F)

True.

Reptiles and Amphibians

C-56. If white-shelled eggs are removed from a road-killed turtle, there is no point in trying to hatch them, because turtle eggs are infertile until they are laid. (T/F)

False. *Reptile eggs are fertilized inside the female before the shell begins to form. Once the shell is laid down, eggs are viable and can be incubated.*

C-57. Most snakes in Maine are poisonous. (T/F)

False. *In fact, there are no poisonous species that are native to Maine. However, some people possess poisonous exotic snakes as pets, and these snakes occasionally escape.*

C-58. The underside of a turtle's shell is called the plastron; the upper side is the carapace. (T/F)

True.

C-59. All poisonous snakes have vertical (elliptical) pupils, facial pits and triangular heads. (T/F)

False. *There are no easy ways to know if a snake is venomous. Although most northeastern species of poisonous snakes would fit the above description, exotics brought to Maine sometimes escape. Use caution when dealing with unfamiliar snakes.*

C-60. The wood turtle is a semi-terrestrial turtle. (T/F)

True.

C-61. Most snakes are:

- a. carnivores
 - b. herbivores
 - c. omnivores
 - d. insectivores
- a.** *However, there are exceptions (some snakes, for example, eat insects).*

C-62. Which of the following is the most common snake in Maine?

- a. water snake b. garter snake c. rat snake d. eastern milk snake
b.

C-63. The painted turtle is one of the most common turtles found in Maine. (T/F)

True.

C-64. Snapping turtles may be safely picked up by the sides of the carapace. (T/F)

False. *A snapping turtle can easily reach your hands in that location. However, it may be safely picked up by grasping the carapace at the rear, with your hands above the rear legs.*

D. DISINFECTANTS AND CLEANLINESS

D-1. Bleach is a chlorine-based product that should not be used to clean cages. (T/F)

False. *Bleach is an excellent cage disinfectant if used properly.*

D-2. Frequent removal of feces and urine from cages is important. (T/F)

True.

D-3. It is important to remove bedding and/or soil from a cage in between housing different sets of mammals. (T/F)

True. *In between housing different sets of mammals, cages must be completely emptied and cleaned. All bedding material including cloth, soil and plant material must either be washed or gathered freshly. Bedding cannot be re-used without cleaning well, because it may contain parasites or other contagious organisms left behind by the previous resident.*

D-4. A large outdoor flight cage for birds only needs to be cleaned once a season. (T/F)

False. *Although it may not be necessary to remove droppings every day from a large outdoor cage for birds, regular cleaning is important.*

D-5. One of the best ways to prevent the possibility of transmission of diseases from wildlife to people or domestic animals is to:

- a. use high doses of antibiotics c. use good hygiene for both oneself and the animals
 b. keep the animals outdoors at all times d. never clean the cages
c.

D-6. Which of the following disinfectants may be used to clean wounds?

- a. Iodophores (e.g., Betadine®) c. Chlorine (e.g., Chlorox®)
 b. Creasols (e.g., Pine-Sol®) d. Phenols (e.g., Lysol®)
a.

D-7. Detergents are effective against fungi and viruses. (T/F)

False. *Detergents have minor disinfectant action against some bacteria.*

D-8. Household disinfectants such as Chlorox® and Lysol® are not toxic to animals, so cages that are cleaned with these products do not need to be rinsed. (T/F)

False. *Many household disinfectants are toxic if ingested or if fumes are inhaled. Cages that are cleaned with phenols or chlorine must be thoroughly rinsed and dried.*

E. HUSBANDRY OF WILDLIFE

General

E-1. Natural fiber towels or rags are a good choice for animal bedding. (T/F)

True. *In general, this is true. Such bedding is cheap, can be laundered and disinfected, and provides good insulation. However, one must be very careful not to use bedding with tough synthetic fibers or cloth that can become unraveled and tangled around the animal. This may cause suffocation or loss of toes or limbs in small animals.*

E-2. Double-door entry into cages housing wild animals is an important safety feature. (T/F)

True. *In cages for birds, a drape or curtain may be used as a second "door."*

E-3. Caging for wild animals should provide the following:

- | | |
|--------------------------------|--|
| a. shelter from the elements | c. stimuli for eliciting natural behaviors |
| b. adequate space for exercise | d. all of the above |
- d.**

E-4. Attention to an animal's behavior is an important aspect of wildlife care. (T/F)

True.

E-5. Wild animals should be maintained away from the sights and sounds of a busy household.

(T/F)

True.

E-6. When raising young wild animals, it is important not to have human dependence as a permanent outcome. (T/F)

True.

E-7. Wild animals that have been hand raised make good pets. (T/F)

False. *Upon becoming sexually mature adults, most wild animals become untrustworthy and may inflict serious injuries on humans. Categorically, they simply do not fit the role of pets.*

E-8. Handling of young mammals should be tapered off at what time?

- | | |
|---------------------------------|--|
| a. when their eyes open | c. when they are placed in outside housing |
| b. when they begin self-feeding | d. just before they are released |
- b.** *When there is no longer a need to assist in feeding, handling should be minimal.*

E-9. Which of the following may cause stress in captive wildlife?

- | | |
|----------------------------------|------------------------|
| a. playing a radio or television | c. stroking by a human |
| b. being hungry | d. all of the above |
- d.** *Stress may be caused by hunger or any unnatural visual, auditory or tactile activity.*

E-10. Keeping accurate records is an important part of rehabilitation. (T/F)

True.

E-11. The term weaning refers to a transition from milk (or formula) to solid diet. (T/F)

True.

E-12. An adult or older juvenile can assist in proper socialization in younger animals of the same species and also encourage foraging behavior. (T/F)

True.

E-13. Confining a recently injured animal in a darkened cardboard box:

- a. may reduce stress
- b. is cruel
- c. may help tame it for treatment
- d. may damage the animal's vision

a. *Stresses to wild species may be quite subtle such as inappropriate housing, too much noise, excessive handling or incorrect grouping of individuals in captivity. The various stresses of captivity can lead to the state of shock or even death. Assuming that the animal does not need emergency treatment, allowing it to remain in the dark and quiet while you assemble your treatment supplies and reference books may significantly reduce its level of stress.*

E-14. Young animals should be raised with others of the same species (conspecifics) whenever possible for proper socialization. (T/F)

True. *If conspecifics are not available (even from another rehabilitator), in some cases, young of similar species may be reared together.*

E-15. The use of surrogate parents helps to reduce the risk of:

- a. abnormal socialization
 - b. abnormal breeding activity
 - c. imprinting to humans
 - d. all of the above
- d.**

E-16. There is no need to isolate young animals to avoid the spread of contagious disease. (T/F)

False. *Quarantine is an important procedure to implement when housing large numbers of animals. Any newly acquired animal, young or old, should be isolated from all others for a period of time to prevent the spread of contagious diseases.*

E-17. You have a litter of three young mammals in your care, when another young animal of the same species is brought to you. You should:

- a. immediately add this animal to the existing litter
 - b. do a fecal exam and if it is negative, add this animal to the litter
 - c. isolate this new individual for a few hours, and if it appears healthy, add it to the litter
 - d. isolate this new individual for several days (or longer) before adding it to the litter
- d.** *To limit the spread of contagious disease, it is best to isolate newly acquired animals, ideally for a minimum of seven days. Even if these animals do not appear to be ill, a period of quarantine is important. With animals showing signs of illness, isolation is essential to prevent exposure to healthy animals. Good hygiene is important in animal care. Don't share utensils, equipment, etc., between ill and healthy animals. Always work from the well to the sick animals, and wash your hands after handling each individual.*

E-18. A prerequisite for good wildlife care is having:

- a. a large house
- b. an ability to identify local species
- c. no pets
- d. formal veterinary training

b. *Accurate identification of the species in question is critical. Unless you know what you're dealing with, you won't be able to house, feed, or release it successfully.*

E-19. Identifying a species can help determine:

- a. diet b. caging c. release criteria d. all of the above
d.

E-20. What two factors are necessary to know before beginning care of any animal?

- a. species identification and sex of the animal
 b. species identification and age of the animal
 c. age of the animal and sex of the animal
 d. species identification and how to tame the animal
b. *In every case, species identification is important for proper care. The age of the animal (young versus adult) is also very important, because young growing animals often have different housing and feeding requirements than adults. Knowing the animal's sex is not important in most cases. Because release back into the wild is the goal, you must avoid taming the animal.*

E-21. What should a rehabilitator know about an animal before deciding on the diet, care and housing for an animal?

- a. species b. age c. natural history d. all of the above
d. *Besides identification and age determination, knowledge of the natural history of a species gives you additional valuable information as to the diet and type of environment an animal requires.*

E-22. Rehabilitators should always try to:

- a. tame the animals they care for so they don't get bitten
 b. practice medicine without bothering to call a veterinarian for help
 c. do more good than harm
 d. give the public advice on how they can care for wildlife in their homes
c. *One goal of wildlife rehabilitation is to avoid taming wild species. The public should be discouraged from adopting wildlife as pets and, instead, be educated as to their value and higher life quality in their natural habitats. Veterinarians are the only people that are licensed to practice veterinary medicine. In caring for an animal, recognize your limitations and do only what you are capable of. It is always better to search out help than to proceed with something you are unsure of.*

E-23. Providing heat to help an animal maintain normal body temperature may lessen the chances of shock. Which of the following methods is an appropriate source of warmth?

- a. heating pad b. incubator c. infrared lamp d. all of the above
d.

E-24. When using an external heat source to raise the body temperature of an animal you must monitor the animal carefully to prevent burns or overheating. Which of the following if used improperly can cause injury to the animal?

- a. heating pad c. incandescent light bulb with reflectors
 b. infrared lamp d. all of the above
d. *It is important to monitor an animal that is being warmed to prevent overheating. If an animal is weak or injured, it may not be able to move away from the source of heat, even if it is getting too hot or burned. It is very easy for an animal to receive burns from a heating pad, even on the lowest setting.*

E-25. If your facility is fully occupied, and further caseload would compromise your standard of care, your most responsible option is to:

- a. take the animal anyway and try to do the best you can
- b. tell the person finding the animal to take it home
- c. refer the person finding the animal to another rehabilitator (or admit the animal, and then transfer it to another rehabilitator)
- d. tell the person finding the animal to leave it in the wild
 - c. *Euthanizing the animal may also be an option.*

E-26. When housing animals indoors, the light to dark ratio of the room should be properly controlled. This means the light should be:

- a. turned on when you enter a room and off when you leave
- b. left on during the day the same number of hours as it is light outdoors.
- c. turned on and off the same time of day, every day.
- d. left on for at least eight hours every day.
 - b. *It is beneficial to keep an animal's internal clock synchronized to its natural environment, to aid in its re-introduction into the wild. This can be accomplished easily by setting a household timer to turn the lights on and off to match the number of hours of daylight outdoors.*

E-27. It is important to simulate the proper photoperiod (day length) for animals housed indoors. (T/F)

True.

Mammals

E-28. You have been presented with a baby opossum that is listless and disinterested in food or water. What should you do first?

- a. warm it up
 - b. try to feed it with a bottle
 - c. stomach tube (gavage) it
 - d. wait until dark and see if it perks up
- a.** *Most baby animals arrive too cold (hypothermic). Warming a hypothermic animal is your first priority. Do not attempt to feed it before it is thoroughly warm.*

E-29. Before their eyes are open, most young mammals need to be stimulated to urinate and defecate by rubbing their genital area with a warm, wet cloth or cotton ball. (T/F)

True. *This simulates the licking of the mother. If this is not done regularly (after every feeding), most baby mammals will sicken and die. Babies should not be expected to urinate and defecate every time, but you must keep up the stimulation.*

E-30. It is okay to house other animals in outdoor cages that raccoons have been in. (T/F)

False. *Because of the possibility that raccoons may carry the Baylisascaris parasite (which can be fatal in other species), raccoon cages should only be used for raccoons. Indoors, solid stainless steel cages are preferred for raccoons to facilitate cage disinfection and prevent the spread of Baylisascaris.*

E-31. Mammals should be provided with multiple hiding places in their cages. (T/F)

True.

E-32. When possible, young raccoons should be housed with other raccoons to encourage proper socialization. (T/F)

True.

E-33. When raising orphaned skunks, it is best to descent them when they are young, because they will be difficult to handle when they are older. (T/F)

False. *Skunks that are to be returned to the wild should never be descented. Spraying is their main defense and they will not survive long without it.*

E-34. A young opossum, 10 inches or longer (including its tail), is still in need of care. (T/F)

False. *A 10-inch opossum is approximately three and a half months old. At this age, opossums will be fully furred and eating on their own; they are ready for release.*

E-35. Baby rabbits should be handled as infrequently as possible because they are stressed easily by handling. (T/F)

True. *Baby rabbits only need to be fed 2-3 times every 24 hours. Between feedings they are best left in a quiet, warm location.*

E-36. It is important to clean rabbit cages frequently so they will not eat their feces. (T/F)

False. *Rabbits ingest the first feces of the day, which contain large amounts of protein and vitamins. This process is called coprophagy and is a normal and necessary process in the life of a rabbit.*

E-37. Handling of a cottontail rabbit causes stress that can be as serious as any injury. (T/F)

True. *Rabbits are very difficult to maintain in captivity. They are very susceptible to digestive system problems like diarrhea and often die from stress alone.*

E-38. Infant cottontail rabbits are on their own by about 4 weeks of age. (T/F)

True. *At about 3 weeks, they leave the nest. They usually nurse for another week or so until they are 3-4 inches long, and the white spot on the forehead is usually faded or is gone. Rabbits this size don't need our help.*

E-39. Which of the following statements is not true about baby cottontail rabbits?

- a. They need to be stimulated to urinate.
 - b. They begin eating solid food and drinking formula from a dish when they are ten days old.
 - c. During the first week, they are kept warm by the mother who stays with them in a fur-lined nest.
 - d. They usually do better when the litter is raised together, rather than separated and raised alone.
- c.** *The mother does not stay with the young. She leaves them camouflaged in the nest all day and returns only at night to feed them.*

E-40. Porcupines should be provided with:

- a. a box to hide in
 - b. branches to chew on
 - c. thick, nappy towels to snuggle in
 - d. a and b.
- d.**

E-41. Red squirrels and gray squirrels can be housed together. (T/F)

False. *These species are often aggressive toward one another.*

E-42. Deer should be kept in pens with smooth cement floors. (T/F)

False. *Smooth cement would not provide a secure footing for hooved animals.*

E-43. Branches for gnawing should be included in cages for squirrels. (T/F)

True. *Gnawing is essential to curb tooth growth; make sure the bark is edible, however.*

E-44. Branches for climbing should be included in cages for:

- a. squirrels b. opossums c. raccoons d. all of the above
d.

Birds

E-45. A chicken coop will provide safe housing for raptors. (T/F)

False. *Chicken wire can cause great damage to the feathers and feet of raptors (and other birds) when they beat themselves against the wire in an attempt to get out of the cage.*

E-46. Placing an orphaned bird into another nest with two similarly aged birds of the same species is a bad idea, because the parents will reject it. (T/F)

False. *Birds do not count nestlings and would not be alarmed by the addition of a similarly-aged youngster to their nest. This may be a good method for handling orphaned nestlings provided that the parents can handle another mouth to feed. Knowing the natural history of the species is important in assessing how large a clutch the parents can raise.*

E-47. A baby bird should be given water at least once a day. (T/F)

False. *Nestling birds receive the water they need from their food (some food items may be moistened).*

E-48. Blue jays scoop water into their mouths when they drink, but mourning doves suck water when they drink. (T/F)

True. *Blue jays and many birds scoop water into their mouths using their tongue and beak like a shovel. Mourning doves are one of the few birds that actually form a suction with their mouths.*

E-49. Heat should be provided for young precocial birds. (T/F)

True. *Precocial birds emerge from eggs with down feathers; their eyes open and they can walk or swim within a few hours of hatching. The mother would normally brood the young to provide warmth.*

E-50. Hand-raised baby birds may become human imprinted, which may cause abnormal behavior when they are grown. (T/F)

True.

E-51. Imprinting occurs at the same age in precocial birds as it does in altricial birds. (T/F)

False. *In precocial birds, imprinting typically occurs within the first 36 hours after hatching. In altricial species, the critical period for imprinting is more variable, usually occurring between the development of vision and the development of fear of predators.*

E-52. Raptors will attempt to mate with individuals of the species on which they are imprinted, even if it is not one of their own species. (T/F)

True.

b. *Bumblefoot is a bacterial infection of the feet that is acquired frequently in captivity. Trauma to the feet and uncleanliness predispose a bird to this disease. Soft plastic grass carpeting or wrapping perches with hemp rope are two methods used to help protect a bird's feet. Also, make sure the bird has perches of different diameters to discourage pressure sores caused by the bird's weight being distributed improperly on the feet.*

E-63. When a bird is ready to be housed outdoors, its cage must:

- a. be well-protected and have sufficient bedding
- b. have perches of varying diameters
- c. have places for the bird to sun itself on cool days and plenty of shade in hot weather
- d. all of the above

d. *Once a bird is placed outdoors, it needs to be given some protection against the elements. It needs to be sheltered from winter winds and it requires shade during the hot summer months. Any cage for housing birds should contain perches of several different diameters to prevent damage to their feet and legs. Some birds also require hiding places such as tree branches with leaves. Most birds benefit from water for bathing as well as drinking.*

E-64. If an adult bird of the same species is not available for imprinting orphans properly, what substitute is preferable?

- a. juvenile or fledgling conspecifics (birds of the same species)
 - b. juveniles of another species
 - c. bird skin puppet
 - d. a and c
- d.**

E-65. You are caring for a baby bird whose eyes are not open and that is not yet feathered. This bird must become imprinted properly in order to be released successfully into its natural environment. To facilitate this process of imprinting, you should:

- a. feed it frequently so it will reach its mature size and weight rapidly
- b. handle this bird frequently
- c. wait until the bird is an adult before placing it with other conspecifics
- d. expose this young bird to adults of the same species within the first week or two of its life

d. *To survive and reproduce in their natural habitats, all birds must learn normal socialization skills. This is accomplished during a critical period just after birth when the baby bird is exposed to an adult of the same species. This process is termed imprinting. For precocial species (birds that emerge from eggs feathered and that follow their parents shortly after birth), this critical period for imprinting occurs typically within 36 hours of being hatched. In altricial species (birds that emerge naked, blind and totally dependent on their parents), this critical time is more variable and occurs usually after the development of visual focus but before the development of fearful responses. If an adult of the same species is unavailable, other options include juvenile conspecifics, bird skin puppets, and mirrors. An adult of a different species is not adequate.*

Reptiles and Amphibians

E-66. The minimum standards for reptile housing consist solely of the space dimensions that will provide adequate space for the animal to move and hunt (if necessary). (T/F)

False. *The minimum standards also include providing appropriate areas to hide and/or bask, depending on the needs of the species.*

E-67. Insufficient temperatures for reptiles promote which of the following?

- a. lack of appetite and poor digestion
- b. increased level of activity
- c. increased tendencies for infection and impaired healing
- d. a and c

d. *Reptiles are cold-blooded animals and require supplemental heat. Usually a temperature gradient is preferred, where one end of the cage is warmer than the other end.*

E-68. Good substrates for reptile cages include

- a. cedar shavings
 - b. clay kitty litter
 - c. corncob litter
 - d. soil or bark mulch
- d.** *Cedar contains volatile oils that are irritating if not deadly. Clay litter is extremely dehydrating and can also cause respiratory difficulties. Corncob litter may be ingested and cause intestinal problems.*

E-69. Most turtles found in Maine are terrestrial species that do not need to be in water. (T/F)

False. *The most common turtles in Maine (painted turtles and snapping turtles) are both aquatic turtles that should spend some time in water every day.*

E-70. It is important for turtles to have exposure to ultraviolet light. (T/F)

True. *Use a full-spectrum lamp if the animal cannot be exposed to natural sunlight at least occasionally.*

E-71. Because of its antiseptic quality, chlorinated tap water is good for frogs. (T/F)

False. *Chlorine can be absorbed through frogs' skin and become toxic. Well water or bottled spring water (not distilled water) should be used.*

E-72. Large and small bullfrogs should be housed together, so that the older frogs can be role models for the younger ones. (T/F)

False. *The larger frogs will eat the younger ones.*

F. WILDLIFE NUTRITION

F-1. Which of the following is not a good source of essential vitamins:

- a. brewer's yeast
- b. water
- c. liver
- d. sunlight

b. *Though essential for all life, water does not contain any vitamins. Brewer's yeast is a good source of B vitamins. Liver is deficient in calcium but does contain several trace minerals as well as many vitamins. Sunlight doesn't contain vitamins, but is important because it aids in the conversion of vitamin D into its more active form.*

F-2. Rehabilitators should learn to calculate the caloric content of the foods they feed to wild animals to ensure proper nutrition. (T/F)

True.

F-3. Providing fluids such as Lactated Ringers® or Normasol® to a debilitated animal also takes care of an animal's caloric requirements. (T/F)

False. *Fluids such as Lactated Ringers® and Normasol® contain only water and several electrolytes (molecules such as sodium, potassium, chloride, bicarbonate). These solutions do not contain any protein, fat or carbohydrates, so they do not provide any calories.*

F-4. It is possible to determine an animal's approximate caloric requirements by knowing its body weight. (T/F)

True.

F-5. Vitamin D is an essential component in the diet of most animals. (T/F)

True.

F-6. If you plan to supplement the diet for a particular species with vitamins and minerals:

- a. it is safe to use very high doses, because the excess will be excreted
- b. human supplements are as good as any
- c. use supplements and dosages for the most closely related domestic species
- d. talk to an animal nutritionist first

d. *Supplementing vitamins and minerals sounds routine. However, animals consuming a balanced diet should not need supplements. In addition, the requirements of species vary, and some vitamins and minerals can be toxic if taken in large quantities.*

F-7. Young, growing geese should be maintained indefinitely on a high-protein diet to prevent deformities of the wings and legs. (T/F)

False. *High levels of protein in the diet of a goose can lead to health problems -- including wing deformities.*

F-8. A starved animal requires special attention to correct the many physiological imbalances that occur with malnourishment. (T/F)

True.

F-9. For their size, growing, juvenile animals have greater caloric requirements than adult animals. (T/F)

True. *The additional energy is needed to form the new bones and tissues.*

F-10. You have been brought an injured, orphaned owl with its eyes open. Because of the injury it can't be put back in a nest. What should you feed it?

- a. cut up mice
- b. lean hamburger or cut-up round steak
- c. cut-up beef heart or chicken livers, supplemented with bone meal
- d. puppy chow

a. *The keys here are feeding sufficient protein and providing the calcium needed for bone growth. Dogs are omnivores, so puppy chow will contain grains that are inappropriate for an owl, which is a carnivore. Both muscle and organ meats contain plenty of protein, but they also contain lots of phosphorus and very little calcium. If meats such as lean hamburger, steak, beef heart, chicken breast, or chicken livers are fed to the young owl, it could cause permanently-deformed bones. Bone meal contains calcium and phosphorus, so you can't make up the missing calcium with bone meal. You could, however use other supplements like calcium carbonate if you had to feed only muscle or organ meats. . However, you would need to be able to calculate the amount of elemental calcium needed to balance the phosphorus in the meat. Ideally, the baby owl should be fed cut-up mice, which are a complete diet. The mouse skin should be removed for the first few days and larger bones either left out or broken up (but watch for sharp bone fragments).*

F-11. Raw hamburger is a good basic diet for most meat-eating birds. (T/F)

False. *Hamburger contains an excess of phosphorus, which will eventually result in metabolic bone disease. Additionally, raw hamburger may contain harmful bacteria.*

F-12. Calcium and phosphorus must be a particular ratio in an animal's diet to ensure proper bone development and prevent bone abnormalities. (T/F)

True.

F-13. Dog food is an excellent diet for carnivorous birds, because it is balanced for calcium and phosphorus. (T/F)

False. *Dog food is balanced for calcium and phosphorus; however, because dogs are omnivores rather than carnivores, dog food has grain ingredients and provides insufficient protein for animal-eating birds.*

F-14. Young, rapidly growing mammals, birds and reptiles may develop bone abnormalities when their diets are deficient in which of the following minerals?

- a. zinc b. potassium c. calcium d. selenium

c. *Lack of available dietary calcium lowers blood calcium to the point where mineralization of bone ceases. This condition is called rickets. Feeding an all muscle-meat or organ-tissue diet can cause rickets, due to the very low levels of calcium and high levels of phosphorus present in these foods.*

F-15. Metabolic bone disease can result from which of the following problems?

- a. calcium deficiency c. improper calcium:phosphorus ratio
b. vitamin D deficiency d. all of the above

d. *Proper levels of calcium and phosphorus are necessary for normal bone development. Vitamin D is involved in the absorption of calcium from the diet, so, indirectly, it is needed for proper bone development, too.*

F-16. What are the two minerals crucial for proper bone development?

- a. calcium and iron c. iron and zinc
b. calcium and phosphorus d. zinc and phosphorus

b.

F-17. What is the proper calcium:phosphorus ratio in the diet of an adult animal?

- a. 1:1 to 2:1 b. 1:2 to 1:4 c. 5:1 d. 4:1

a.

F-18. Squirrels should be weaned onto:

- a. nuts b. corn c. sunflower seeds d. rodent block

d. *Nuts, corn and sunflower seeds all contain much higher levels of phosphorus than calcium; therefore, these foods will contribute to the development of metabolic bone disease. Rodent block (or lab chow) is a balanced diet for squirrels.*

F-19. Birds or mammals fed mainly a fish diet should receive supplemental thiamine (vitamin B₁) to prevent a serious vitamin deficiency. (T/F)

True.

F-20. Protein is protein: it doesn't matter whether it comes from animal or plant sources. (T/F)

False. *Plant sources of protein do not have the same relative amounts of amino acids as animal sources; often they are deficient in at least one essential amino acid. Growing mammals and birds whose natural diet consists of animals (i.e., carnivores, insectivores, etc.) need the amino acid profile found in animal sources of protein.*

F-21. When feeding fish-eating birds, such as herons or egrets, in captivity, it is essential to supplement their diet with which of the following vitamins?

- a. A b. B₁ c. C d. D₃

b. *In some fish, there is an enzyme called thiaminase, which destroys vitamin B₁. In their natural habitats, birds compensate for the lack of vitamin B₁ in these fish by eating a wide variety of fish. But when feeding frozen, dead, or a single type of fish to fish-eating birds in captivity, you must supplement the diet with vitamin B₁. Supplemental thiamine should also be used for fish-eating reptiles or mammals.*

F-22. Excess vitamin A can be toxic or even fatal; a deficiency can cause mouth lesions. (T/F)

True.

F-23. No native Maine mammal species is capable of subsisting solely on a fruit diet. (T/F)

True. *Fruits are very low in protein, fats and other essential nutrients.*

G. FOOD SOURCES AND FEEDING METHODS

General

G-1. In a captive situation, a wild animal offered a variety of foods will always eat those foods that are good for it. (T/F)

False.

G-2. Tube-feeding is the preferred routine method for feeding most healthy baby animals. (T/F)

False. *Tube-feeding should be used as a method of feeding only when the animal refuses to eat or is too weak to eat on its own. If tube-feeding is used routinely, permanent digestive and gastrointestinal problems may occur. However, with orphaned, suckling opossums, tube-feeding may be the most practical way to feed.*

G-3. Adhering to a regular feeding schedule is as important as feeding the proper diet. (T/F)

True.

G-4. Human supplemental formulas such as Ensure®, Isocal® and Ultracal® can be fed to emaciated wildlife. (T/F)

True. *However, these products vary considerably in fiber and macronutrient contents; some of them are very high in sucrose (table sugar), which carnivores (and related food specialists such as insectivores and piscivores) may be unable to digest. Vital High Nitrogen® contains less sucrose than the other products mentioned in the question.*

G-5. If the hole in a feeding nipple is too large, it can leak formula and lead to aspiration and/or pneumonia. (T/F)

True.

G-6. Aspiration of formula into the lungs can lead to pneumonia. (T/F)

True.

G-7. Formulas do not need to be warmed before feeding. (T/F)

False. *Formula should be approximately body temperature when it is fed. The "wrist test" used for human baby foods can be used for animal formulas as well. It is important that formulas not be hot, so be particularly careful with any formula that has been heated in a microwave.*

G-8. Gavage is another name for what technique?

- a. tube-feeding b. wound flushing c. injection d. euthanasia

a.

G-9. The purpose of gavage is to provide adequate nourishment to animals unable or unwilling to self-feed. (T/F)

True.

G-10. A recently-rescued emaciated animal should not be fed a normal diet. (T/F)

True. *The sudden introduction of solid food into the GI tract of an emaciated animal would precipitate refeeding syndrome, a clinical condition characterized by electrolyte imbalances and organ dysfunction.*

G-11. Tube-feeding mixes for starving animals should be elemental diets that require little energy to digest. (T/F)

True. *Vital HN® is an example of a partially-hydrolyzed human supplemental formula that can be used with many animals.*

G-12. As long as a nutritionally balanced diet is provided for orphans, the frequency of feedings is not important. (T/F)

False. *Frequency of feeding is as important as feeding a balanced diet. A routine schedule for feeding keeps food moving through an animal's gastrointestinal system at a constant rate. Erratic feeding can cause food to be digested incompletely and may cause illness. Recommended frequencies vary from species to species.*

G-13. After warming, the first step in counteracting emaciation or starvation in an animal is to encourage them to eat a normal diet. (T/F)

False. *The sudden introduction of nutrients in an emaciated patient would precipitate refeeding syndrome. It is safer to start with fluids, then introduce a diet composed of simple molecules such as amino acids and dextrose, which require little energy for absorption.*

G-14. Introduction of live prey into a large flight cage is an excellent way to train hand-reared raptors and predatory mammals to hunt and kill prey. (T/F)

True. *This practice allows you to assess predators' readiness for release and also enhances muscle development.*

G-15. Carnivorous mammals and birds should be fed:

- a. whole prey animals or a balanced domestic carnivore diet c. what ever they seem to like
b. meat scraps and some vegetables d. meat scraps

a.

Mammals

G-16. An appropriate diet for nursing orphaned young wild cats (bobcats, lynx) is:

- a. canned dog food
 - b. puppy milk replacer (e.g., Esbilac®)
 - c. kitten milk replacer (e.g., KMR®)
 - d. pureed puppy chow
- c.** *As a rule, if wild felines are fed a commercial food product, it must be one that is nutritionally designed for cats. Growing and adult cats require nutrients that dogs do not. If cats are fed diets that lack these nutrients, serious irreversible problems can occur in a matter of days.*

G-17. While feeding a young squirrel, you notice milk bubbles around the nose and mouth. You should:

- a. stop feeding, wipe the surplus off, and hold the head down and gently shake or rub between the shoulders
 - b. assume it doesn't like the taste of the milk but will get used to it in time -- keep going
 - c. wipe the surplus off and place the squirrel on its back
 - d. stop the feeding because its stomach is full, which is why the milk is coming back up
- a.** *This squirrel has aspirated (gotten fluid into its breathing tract). It is important to try and get the milk out. During the next 24-48 hours, you should be especially alert for signs of pneumonia.*

G-18. To save time, tube-feeding can be used routinely instead of nursing in any healthy young mammal. (T/F)

False. *Nursing from a bottle is more natural and less stressful for the animal. Most young mammals do not nurse too slowly for bottle-feeding to be practical (however, an exception is newborn opossums).*

G-19. Neonatal opossums are best fed from a bottle or an eyedropper. (T/F)

False. *These neonates nurse very slowly on their own, and feeding them by stomach tube is often the only practical method.*

G-20. The easiest and best method for feeding very young opossums is by stomach tube-feeding (gavage). (T/F)

True.

G-21. It is usually necessary to stimulate nursing mammals to urinate and defecate before or after each feeding. (T/F)

True.

G-22. When bottle-feeding infant animals, it is better to overfeed to be sure they get enough than to underfeed. (T/F)

False. *Overfeeding can lead to gastrointestinal disturbances and illness. Overfilling of the stomach can lead to decreased contractions, with subsequent curdling or souring of the milk before it can be digested adequately.*

G-23. Infant animals should be held like human babies when being fed -- on their backs. (T/F)

False. *A good rule of thumb is to simulate the natural feeding posture. Example: An infant raccoon should be on all four feet with its head at a 30-45° angle.*

G-24. Formula feedings should be discontinued in the case of diarrhea in young mammals. (T/F)

True. *In general, when an animal has diarrhea, it is a good idea not to give it anything orally for 12-24 hours to give the intestinal tract a chance to rest and repair damage. Supplemental intravenous or subcutaneous fluid replacement may be required. Do not let babies get dehydrated! If you must feed a nursing baby with diarrhea, first try diluting the formula further. If this does not help, discontinue the formula and begin feeding a balanced electrolyte solution. Rice powder or sugars can be added to this solution to provide energy. Consult your veterinarian.*

G-25. Adult snowshoe hares and cottontail rabbits can be fed the same diet. (T/F)

True.

G-26. Esbilac® and KMR® are common milk replacers used for rearing most orphaned wild mammals. (T/F)

True. *However, products in the PetAg and Fox Valley lines may have better matches to the macronutrient levels of mothers' milk for a given species.*

G-27. The mothers' milk of all mammals has pretty much the same proportions of macronutrients (protein, fat, carbohydrate); therefore, mammal orphans can all be raised on the same milk substitute. (T/F)

False. *The mothers' milks of different species have different macronutrient levels and different proportions of solids.*

G-28. Mammals are easier to tube-feed than birds because their glottis (opening to the trachea) is visible when the mouth is opened. (T/F)

False. *The glottis of birds is visible at the base of the tongue, in front of the opening to the esophagus. In mammals, the glottis is located much farther back in the throat and is more difficult to see.*

G-29. When beginning to hand-feed a litter of orphaned gray squirrels, the appropriate formula should be:

- a. warmed to body temperature before feeding
- b. fed using bottles or syringes with sterile nipples
- c. fed initially at full concentration
- d. a and b

d. *When feeding any orphaned, suckling mammal, the formula must be warmed to body temperature. Initially, the formula should be diluted to a 30% concentration with water and this dilution fed for the first few feedings. For the following feedings, a 50% dilution may be used and, finally, a 100% solution of formula within 24-48 hours. If a microwave is used to heat the formula, it is important to mix well prior to feeding, because uneven heating will occur and some portions of the liquid may be hot enough to burn. It is preferable to use sterile nipples on each individual or litter of mammals to limit spread of disease. Do not use glass eyedroppers because they are likely to break.*

G-30. Aspiration pneumonia is a common problem associated with bottle-feeding of orphaned mammals. It is caused by:

- a. feeding too large a volume of formula too rapidly
- b. burning the face with the warmed formula
- c. missing more than one feeding
- d. a and c

a. *When bottle-feeding any young mammal, the rate of flow of the formula should be monitored carefully. If the formula flows into the mouth too rapidly, the excess may be aspirated into the*

trachea, then will travel down to the lungs where an infection will develop. This condition is termed aspiration pneumonia. Feed slowly to ensure that the liquid is swallowed properly.

G-31. If fluids enter the trachea and go into the lungs it is possible for the animal to get pneumonia or even drown. (T/F)

True.

G-32. You are hand-feeding a very young chipmunk whose eyes have not yet opened. After feeding, you need to stimulate the animal to assist it with urinating and defecating. This is accomplished easily by:

- a. gently pressing on the chipmunk's stomach
- b. gently massaging the chipmunk around its anal and urinary openings with a wet cloth
- c. letting your dog lick the chipmunk as if it were its mother
- d. carefully dipping the hind end of the chipmunk in a container of warm water

b. *By gently massaging the urogenital area, stimulation of urination and defecation will occur. This should be done after giving fluids and after each feeding. Mammals learn to regulate their own bowel movements and urination habits shortly after their eyes open. Always make sure the animal is clean and dry before returning it to its cage.*

Birds

G-33. The natural diet of adult robins, orioles, cedar waxwings and catbirds consists of which of the following food groups?

- a. seeds and nuts
- b. insects and wild fruits
- c. mice
- d. fish and frogs

b.

G-34. The natural diet of adult finches, grosbeaks and sparrows consists of which of the following food groups?

- a. mainly seeds with some insects and fruits
- b. mainly fruits with some insects
- c. mainly earthworms
- d. mainly fruits

a.

G-35. Some insects and nectar from flowers are the natural diet of which of the following?

- a. chickadee
- b. hummingbird
- c. bluebird
- d. English (house) sparrow

b.

G-36. The natural diet of loons, herons and grebes consists almost entirely of which of the following food groups?

- a. fish, amphibians, crustaceans, insects
- b. seeds, nuts, berries
- c. fruits, seeds, insects
- d. carrion (dead animals)

a.

G-37. Which of the following groups of birds would eat grubs, nuts, beetles, and to some extent, berries?

- a. cardinals and grosbeaks
- b. kingfishers and ospreys
- c. ducks and geese
- d. sapsuckers, flickers, and other woodpeckers

d.

G-38. An appropriate food for a baby raptor is:

- a. beef heart
 - b. hamburger
 - c. chicken parts
 - d. cut up whole rodents
- d.**

G-39. Whole prey items such as mice, rats and quail are the best foods for a raptor. (T/F)

True. *Additionally, captive-raised prey are often safer foods because any dead wild counterparts that you find may be contaminated with parasites, diseases, or toxins.*

G-40. Regardless of their adult diet, almost all songbird species feed their young insects. (T/F)

True.

G-41. Passerine nestlings should be raised on a formula

- a. designed for pet birds, such as Kaytee Exact® or LaFeber Nutri-Start®
- b. containing puppy food plus baby cereal or wheat germ
- c. containing kitten food plus other sources of animal protein
- d. any of the above.

c. *Almost all growing passerines are insectivorous; they need high levels of animal protein. Products for pet birds are designed for granivorous species with lower protein requirements. Puppy food is designed for a growing omnivore; adding additional grains reduces its quality even further relative to the needs of an insectivore. Kitten food is designed for a growing carnivore; additional animal protein brings the protein % to the high levels found in insects.*

G-42. Live freshwater fish should not be fed to fish-eating species of marine birds because:

- a. of exposure to new types of parasites
- b. less salt is present in the fish than in saltwater fish
- c. they won't eat this type of fish
- d. these fish have less of the necessary nutrients for this species of bird

a. *When feeding live fish to species in captivity, it is important that these fish come from the same habitat as that of the bird being fed. Often, there are parasites present in fish. Oceanic birds have adapted to the types of organisms present in their normal environment. However, when exposed to parasites from foreign environments, they may become ill.*

G-43. An osprey should be fed which of the following foods?

- a. mice and day-old chicks
 - b. beef heart
 - c. whole fish supplemented with thiamine
 - d. whole fish and day-old chicks
- c.**

G-44. Hand feeding baby chimney swifts must often be done in a slightly different manner than with other young birds because:

- a. they will eat only a very specific diet
- b. they do not have the ability to gape
- c. they have greater energy needs than other birds their size
- d. the location of their nests is such that they eat most readily when fed from below them.

d. *The nests of chimney swifts are constructed against the wall of a chimney. During the normal pattern of feeding, the mother flies down the chimney and comes up under the nest to feed the young. The babies will lean over the nest to get food from her. When babies are being hand-fed, they may not lift their heads upward to receive food from above, but instead will lean out over the nest to be fed from beneath.*

G-45. It is never difficult to get young precocial birds to eat in captivity. (T/F)

False. *Some precocials are fed by their parents for a time. Also, many precocial young feed primarily on insects, worms and other small, moving prey; it may be difficult to provide proper stimuli in captivity. Canada geese and other species that eat plants may be easier to care for.*

G-46. A blue jay with half-grown wing feathers should probably be fed:

- a. every six hours
- b. every three hours
- c. every hour
- d. every half hour

c.

G-47. A typical nestling songbird needs to be fed how often?

- a. hourly around the clock
- b. every 30-60 minutes dawn to dusk
- c. 4 to 6 times per day
- d. every 2 hours

b. *Very young babies of most common passerine bird species must be fed about every 30 to 60 minutes from early morning until mid-evening. Providing a diet that has high levels of animal protein is critical. In addition, warmth must be provided and the young must be kept clean. This means removing the feces every time the young birds defecate. As they get older, they can be fed with decreasing frequency.*

G-48. Pigeons and doves feed their young:

- a. regurgitated insects
- b. regurgitated seeds
- c. a secretion from their own crops
- d. both b and c

d. *Pigeons and doves feed their hatchlings a secretion called crop milk, which is very high in protein and fat. As the birds mature into nestlings, crop milk is gradually replaced with regurgitated seeds.*

G-49. Baby pigeons and doves should be fed the same hand-rearing diet and on the same schedule as baby songbirds. (T/F)

False. *Columbid species (pigeons and doves, order Columbiformes) have dietary needs that are different from those of songbirds. Hatchlings should be fed a high-protein high-fat replacement for crop milk (not mammalian milk or milk replacers); nestlings can be fed a pet-bird hand-rearing formula. Columbids also eat more per feeding and can be fed less often than songbirds.*

G-50. A missed feeding for a nestling bird can be made up at the next feeding by doubling the amount. (T/F)

False. *You cannot compensate for a missed feeding by doubling the amount on the next feeding. Most nestlings will let you know when they are full by turning away or refusing to gape.*

G-51. Sometimes a bird can be encouraged to eat by placing a small amount of food in the back of the pharynx behind the glottis. (T/F)

True.

G-52. Day-old chicks are a good food for long-term care of a raptor. (T/F)

False. *Day-old chicks are deficient in calcium and should not be fed without using calcium supplements. Over time, the fat and cholesterol in the chick's yolk may also cause heart disease in the raptor.*

G-53. The trachea in all birds is just behind the tongue. (T/F)

True

G-54. Freshly-dead feral (wild) pigeons are a good item to feed to raptors. (T/F)

False. *One should avoid feeding pigeons to raptors whenever possible. Wild pigeons can be carriers of several different diseases, which could be transmitted easily to any raptor.*

G-55. An adult woodcock in rehab should be given about 2 dozen trout worms per day. (T/F)

False. *Woodcocks may eat their own weight or more in worms per day. Assuming that one trout worm weighs one gram, an adult woodcock should be offered at least 100 worms per day.*

G-56. Sugar water is a complete food for a hummingbird (T/F)

False. *Sugar water is a substitute for floral nectars, but hummingbirds also need the protein and other nutrients they obtain from insects in the wild.*

Reptiles and Amphibians

G-56. Most aquatic turtles will eat only if they are underwater. (T/F)

True.

G-57. Which of the following is a suitable food to give to turtles to encourage them to eat?

- a. apples b. fish c. earthworms d. dry dog food
c.

G-58. Snakes will often regurgitate their food if they:

- a. find it tastes bad c. are beginning to shed their skin
b. are disturbed or handled too soon after eating d. all of the above
b.

G-59. Turtles in rehab may be fed commercial foods for pet turtles such as ReptoMin®. (T/F)

True. *However, natural foods may be better over an extended period of time.*

G-60. A good diet for turtles in rehabilitation is raw hamburger and iceberg lettuce. (T/F)

False. *The high phosphorus content of hamburger puts turtles, as well as other animals, at risk for metabolic bone disease. Iceberg lettuce has little, if any, nutritional value.*

G-61. Which of the following foods would be best for a frog?

- a. tubifex worms b. krill c. live mealworms d. live crickets
d. *Although a, b and c are all acceptable from a nutritional standpoint, frogs are attracted to moving prey and may not show interest in any of the alternatives except crickets.*

G-62. If you put a live mouse in with a snake, and the snake does not eat the mouse right away, you should just leave the mouse in overnight. (T/F)

False. *Live mice have been known to mutilate snakes if confined with them for extended periods of time. Freshly-killed mice may be better choices for captive snakes.*

H. FIRST AID AND TRIAGE FOR WILDLIFE

H-1. Shock, severe dehydration, severe emaciation, blood loss, or other fluid loss are life-threatening conditions and should be treated immediately. (T/F)

True.

H-2. Wildlife species probably do not feel pain as you and I know it. (T/F)

False. *It may not be adaptive for wild animals to exhibit pain-related behavior (doing so might alert predators). However, scientific evidence shows that wild animals have the nervous system components to experience pain just as we do.*

H-3. Often the best action to take when an animal is first brought in is to:

- a. begin feeding it immediately
 - b. do a thorough physical exam right away
 - c. transport it to a veterinarian immediately
 - d. observe the animal, note its condition and, if no life-threatening conditions exist, leave it alone for awhile in a quiet, dark, warm place
- d.**

H-4. Which of the following situations should not be considered a hopeless case, because there is generally a good chance of the animal's recovery?

- a. a gray squirrel with a broken back and inability to use its hind legs
 - b. a skunk found circling in one direction with a crusty nasal discharge
 - c. a red fox with most of its hair missing and raw scabs on its skin
 - d. none of these cases are likely to have a good chance of recovery
- c.** *This is probably sarcoptic mange. With prompt treatment by a veterinarian, many animals can be saved. Handle carefully; this parasite can get on you or domestic animals.*

H-5. One problem presented commonly that has a very poor prognosis for recovery is an animal with a broken back. Characteristic signs of this condition may include:

- a. loss of the ability to move the tail
 - b. loss of normal tone or movement of the cloaca or anal sphincter
 - c. inability to move the hind legs
 - d. all of the above
- d.** *Broken backs are seen commonly with severe traumatic injury. Signs include inability to move the hind limbs, inability to control elimination, flaccid cloaca or anal sphincter, and flaccid tail. On occasion, you may be able to feel the misalignment of the spinal column. If there is no purposeful movement in the hind limbs, the chances for recovery are slight, even if reflexes are present in the limbs.*

H-6. Signs that help you to recognize an animal in shock include:

- a. severe, watery diarrhea
 - b. rapid, shallow breathing
 - c. weak pulse and pale mucous membranes
 - d. b and c
- d.** *Shock is a condition that may occur due to extreme stress, acute blood loss or internal hemorrhaging. Clinical signs include rapid, shallow respiration, pale mucous membranes, weak but rapid pulse, subnormal body temperature, and some level of unconsciousness. Treatment involves warming the animal to a normal body temperature and giving intravenous or subcutaneous fluids.*

H-7. When presented with an animal whose problem is unknown, the best thing for you to do is:

- a. give emergency care and consult a veterinarian or a more experienced rehabilitator
 - b. euthanize the animal
 - c. attempt to treat it on the basis of your best guess
 - d. release it to the wild and let nature take its course
- a.**

H-8. An animal is admitted with a fractured leg and is in shock. The fracture should be treated first and then the state of shock should be controlled. (T/F)

False. *Shock is a state of decreased blood flow often brought about by loss of blood or fluids. Decreased circulation to vital organs such as the heart, brain and kidneys can cause permanent damage and lead quickly to death. Any active bleeding will contribute to the state of shock and should be controlled immediately. The animal must then be treated for shock before any other therapy is begun. Once the animal's condition has been stabilized, any wounds or fractures can be tended to.*

H-9. Dehydration in animals can occur due to vomiting, blood loss or diarrhea. (T/F)

True.

H-10. When presented with distressed wildlife, the first order of business is to:

- a. call IF&W
 - b. give the animal food
 - c. wash your hands
 - d. identify the species
- d.**

H-11. Home products such as Gatorade® or flat cola are as good for treating shock and dehydration as medical products like Lactated Ringers® or Normasol®. (T/F)

False. *These products usually contain undesirable ingredients such as sugar, flavorings or caffeine. Unflavored Pedialyte® provides electrolytes and could be used if Ringers® or Normasol® were not available. However, another consideration is that oral fluids should not be given to an animal in shock (it is best to give an animal in shock sterile fluids intravenously or by some other parenteral route).*

H-12. Life-threatening conditions should be treated immediately; other conditions (such as fractures) can wait until the animal is stable. (T/F)

True.

H-13. If a rehabilitator is unsure of an animal's condition, a veterinarian or more experienced rehabilitator should be consulted. (T/F)

True.

H-14. If a nestling bird has been out of its nest for some time and has gotten chilled, the first thing to do is warm it. (T/F)

True.

H-15. An opossum bleeding freely from a front paw should have a tourniquet applied near its elbow. (T/F)

False. *Do not use a tourniquet; this often results in loss of the limb. In most cases pressure applied directly to the wound (with a sterile gauze pad covering the wound) is sufficient to stop bleeding.*

H-16. Fluid therapy is an indispensable link in the treatment of a critically ill animal. (T/F)

True.

H-17. The goal of fluid therapy is to replace the fluid deficit over a 24 to 48 hour period, provide maintenance fluid intake during this period, and compensate for ongoing losses. (T/F)

True.

H-18. Fluid therapy is one of the most important treatments for a rehabilitator to know. (T/F)

True.

H-19. The rate of an animal's recuperation is related directly to its psychological well-being. (T/F)

True.

H-20. Once an emaciated animal has been warmed, what is the next step in caring for it?

- a. feed it solid food
 - b. administer fluids
 - c. give it antibiotics
 - d. feed it a diet consisting of basic elements that requires little energy for digestion
- b.** *After warming and a course of fluid therapy, provide a diet such as in d.*

H-21. In medical terminology, "s.i.d." means:

- a. once daily
 - b. twice daily
 - c. three times daily
 - d. four times daily
- a.** *s.i.d. stands for the Latin phrase "semel in die" or once in a day. Twice a day is abbreviated b.i.d. (for the Latin, "bis in die"); t.i.d. ("ter in die") means three times in a day.*

H-22. In medical terminology "q.3d" means to administer medications:

- a. orally
 - b. every three hours
 - c. once every three days
 - d. a and b
- c.** *The "q" stands for the Latin "quaque." The term is used in combination with words or numbers such as q.h. ("quaque hora," or every hour), q.4h ("quaque 4 hora," or every 4 hours), q.d. ("quaque die," or every day), and q.3d ("quaque 3 die," or every third day).*

H-23. In medical terminology "SQ" means administer:

- a. injection subcutaneously (under the skin)
 - b. injection intravenously
 - c. medication periodically
 - d. medication by mouth
- a.**

H-24. Rehabilitators should seek professional assistance in identifying infectious disease. (T/F)

True.

H-25. Injured reptiles should be kept cool to facilitate recovery. (T/F)

False. *Because reptiles are cold-blooded animals, the most important aspect of reptile care is housing them at warm temperatures. Colder body temperatures will slow metabolic processes in reptiles dramatically and may cause anorexia (lack of appetite), poor digestion and decreased functioning of the immune system.*

H-26. What is the first priority upon receiving a young sparrow that is poorly feathered and has been out of its nest for some time?

- a. feed it immediately
 - b. place it in a cage with other young birds
 - c. warm it to its normal body temperature
 - d. all of the above
- c.** *This bird needs to be warmed first. Orphaned birds or mammals without feathers or fur cannot control their body temperature and will become chilled easily. Several approaches to warming include use of an incubator, heating pad, or hot water bottle. If using a heating pad, do not place the animal directly on top of it; even on a low setting, burns may occur because the bird may be too weak to move from the pad. Regardless of which technique is used, avoid overheating.*

H-27. An animal should be in stable condition before radiographs, anesthesia or surgery is considered. (T/F)

True.

H-28. Although veterinarians should see animals with fractures as soon as possible, rehabilitators may have to immobilize a limb prior to seeking assistance to prevent further damage. (T/F)

True.

H-29. A rabbit attacked by a cat has a two-inch tear through the skin in the back of its right thigh. The wound is jagged and contaminated with debris. After stabilizing the animal, you should:

- a. flush the wound thoroughly with lots of saline or warm water
- b. wash the wound vigorously with a lot of soap and water
- c. immediately begin oral antibiotics
- d. apply antibiotic salve to the wound and bandage the leg
 - a. *When presented with any contaminated wound, the first step is to clean it well by flushing it with large volumes of fluid. It is important not to use soap or detergent (or hydrogen peroxide), any of which can be destructive to sensitive tissues. An antiseptic solution, like Betadine® or Nolvasan®, can be used; if an antiseptic is unavailable, plain saline or warm water will be adequate. Almost always, it is advisable to use antibiotics in animals with cat-bite wounds. However, rabbits and rodents are especially sensitive to certain antibiotics. Therefore, you should consult a veterinarian.*

H-30. Which of the following conditions is best treated with veterinary assistance?

- a. an unknown illness
 - b. an illness
 - c. fractures with the bone sticking out
 - d. all of the above
- d.** *Remember, the rehabilitation permit does not train or license you to practice veterinary medicine.*

I. INTAKE AND PHYSICAL EXAMINATION

I-1. Which of the following is an important question to ask when accepting an animal for rehabilitation?

- a. where and when was the animal found?
 - b. did the finders have any contact with blood, saliva or feces?
 - c. did the finders feed or treat the animal?
 - d. all of the above.
- d.**

I-2. Records and information taken by rehabilitators should include which of the following?

- a. admittance data: background information on the animal
 - b. physical exam information
 - c. treatments and daily observations
 - d. all of the above
- d.**

I-3. Rehabilitators should attempt to obtain a detailed history and as much background information as possible on each animal admitted. (T/F)

True.

I-4. If you are called to pick up a five-day-old barred owl that has fallen out of the nest cavity and has no obvious injuries, the best thing to do is:

- a. remove the owlet and foster it with a non-releasable adult owl
- b. return the owlet to the nest cavity, if at all possible
- c. place the owlet on a low branch of the nearest tree
- d. remove the owlet and hand-rear it

b.

I-5. A bird that has flown into a window sometimes only needs a couple of hours rest in a dark, quiet, well-ventilated, warm box before it can recover and be released. (T/F)

True.

I-6. The eyes of an animal that has experienced head trauma should always be examined for injuries. (T/F)

True.

I-7. During a physical exam, one simple rule to aid in determining abnormalities is that generally each individual animal is "built" symmetrically. The left side is a mirror image of the right side. (T/F)

(T/F)

True.

I-8. The normal body temperature for all mammals is 98.6° F. (T/F)

False. *Body temperatures vary greatly. Marsupials (opossums) have lower ones - usually around 92° F, while raccoons average about 102° F.*

I-9. Normally a bird's body temperature is considerably higher than that of a mammal. (T/F)

True.

I-10. In mammals, capillary refill time is useful in checking for:

- a. fever
- b. shock
- c. a normal red blood cell count
- d. steady respiration

b. *Shock reduces blood flow. Capillary refill time is judged by pressing on a mammal's gums, releasing the pressure, and seeing how many seconds it takes for that whitish area to refill with blood. In healthy mammals, it should not take longer than two seconds.*

I-11. A useful method of ascertaining whether a raptor is underweight is to feel its keel or breastbone. (T/F)

True. *A prominent keel usually indicates a thin bird. However, a prominent keel can also result from dehydration, or from the bird having not flown in a while.*

I-12. How do you recognize if a bird is severely dehydrated?

- a. its body temperature will be low
- b. the color of its mouth will be bright pink
- c. its saliva will be sticky and stringy
- d. its droppings will be green

c.

I-13. Which of the following observations might help in the diagnosis of a wild animal's condition:

- a. color and consistency of the bowel movements
 - b. breathing pattern
 - c. contorted position of the head (wryneck)
 - d. all of the above
- d.**

I-14. The clinical signs or symptoms of rabies and distemper are distinctive enough for a rehabilitator to determine the difference in a wild animal. (T/F)

False. *Only laboratory examinations can differentiate between these two diseases.*

I-15. A woodchuck that has been found alongside the road is brought to you. It staggers when walking, it seems uncoordinated, its head is tilted to one side, and its pupils are different sizes. Which of the following problems can be considered possible causes of these symptoms?

- a. trauma
- b. toxin ingestion
- c. infectious disease
- d. all of the above

d. *Neurologic signs, such as circling in one or both directions, head tilt, eyes that quiver or rotate, asymmetric pupils, staggering or incoordination, indicate a disorder of the central nervous system. There are a number of possible causes for these signs, including head trauma, ingestion of toxins, parasites, and infectious diseases such as canine distemper and rabies. Extreme caution should be used in handling these animals. Veterinary assistance is necessary to determine the exact cause of the problem, because many diseases that affect the central nervous system present the same symptoms.*

I-16. If a mammal is exhibiting signs of having difficulty swallowing, one should suspect:

- a. the food is inappropriate
- b. a foreign object in the throat
- c. rabies
- d. all of the above

d. *Any one clinical sign in an animal may have many possible causes. Examination of the food and the mammal itself can help rule out some of the possible causes. Use extreme caution when handling any mammal demonstrating neurologic signs compatible with rabies.*

I-17. Mammals showing central nervous system signs should always be suspected of having rabies; they should be confined in quarantine and handled with extreme caution. (T/F)

True.

I-18. When housing a bird that has problems with its sense of balance, giving it a deep bath pan and water:

- a. helps the bird waterproof its feathers
- b. keeps the bird from becoming dirty
- c. may cause the bird to drown
- d. allows the bird to drink easily

c. *When housing birds and mammals with CNS (central nervous system) problems, or animals that are bandaged in such a way that they have trouble walking, one must be very careful to set up the cage so the animal cannot fall into its water dish and drown.*

I-19. The most common problems associated with orphaned wildlife are dehydration, starvation and exposure. (T/F)

True.

I-20. In rescuing an animal in the field, the wildlife rehabilitator's paramount concern is:

- a. securing the animal at all cost
- b. safety to the people involved
- c. using high-technology capture equipment
- d. working alone

b.

I-21. You admit a red fox that is suffering from hair loss. Handling the animal with gloves, you should:

- a. assume the hair loss is nutritional and correct with proper diet
- b. treat for mange mites with a commercial flea and tick dip
- c. isolate the animal and contact a veterinarian
- d. put the animal in with another fox for company
 - c. *A number of problems may cause this condition. Quarantine is important because this animal may have something communicable to you or to other animals. You really don't know what the problem is and, without a proper diagnosis, your treatment may be useless or even harmful.*

I-22. An adult wild animal that allows humans to approach it closely is most likely sick or injured. (T/F)

True.

I-23. When handling an animal, safety of the person restraining or rescuing the animal is the first and foremost concern. (T/F)

True.

I-24. When handling a raptor, the first thing to control is its head. (T/F)

False. *Control the feet. A raptor's talons are its major weapons. It may hurt to get bitten, but the talons can do much more serious damage to you.*

I-25. If a caller is going to attempt to capture an injured raptor, you should suggest:

- a. grasping a foot quickly, then restraining the wings, being careful not to further injure the bird
 - b. tossing a blanket over the bird
 - c. wearing heavy gloves because of the bird's potential to inflict serious injury with talons
 - d. b and c
- d.**

I-26. When handling raptors, a person needs to be concerned mainly with the beak and not worry about the talons and feet. (T/F)

False.

I-27. When handling a great blue heron, you must be careful of its long neck and sharp beak and protect your eyes. (T/F)

True. *When handling a great blue heron, no one has arms long enough to hold the bird's body at a safe distance -- its neck is so long that it can always peck your face. Be careful! Grab the beak or head with one hand and then tuck the bird's body under your opposite arm. Always maintain control of the head and beak, and wear goggles to protect your eyes.*

I-28. Herons will use their bills as a means of defense. Rehabilitators should take special care when handling them. (T/F)

True.

I-29. Eye goggles are especially important when handling :

- a. bitterns, herons or egrets
 - b. any large mammals
 - c. hawks or owls
 - d. raccoons or woodchucks
- a.**

I-30. American bitterns can be dangerous to handle because:

- a. they have a sharp bill and can give your hands a serious bite
- b. they stab at the eyes of a person or predator that gets too close
- c. they have long, sharp talons
- d. they carry several diseases that rehabilitators often get

b.

I-31. When transporting a raptor that is restrained in a blanket or towel, the rehabilitator must be aware of the possibility of the bird becoming:

- a. hyperthermic b. hypothermic c. anemic d. epileptic (having seizures)

a. *Hyperthermic means overheated.*

I-32. To transport small birds:

- a. place the bird in a parakeet cage
- b. wrap the bird securely in a towel
- c. place it in a small cardboard box that has a secure lid and a cloth on the bottom
- d. keep it warm in your hands

c.

I-33. Rescued small animals should be transported in which manner?

- a. in your hands c. in an open bucket
- b. in a warm, well ventilated, dark box or pet carrier d. under your jacket

b. *But don't keep them too warm. In summer, animals may easily become overheated.*

I-34. Severely emaciated or dehydrated animals (down to 50-70% of normal body weight) are often very difficult to save, and should not be fed solid food right away. (T/F)

True. *At 50-70% of normal body weight, these patients should be warmed and given fluids first, followed by easily digestible liquid nutrition (they may receive nutrients intravenously). The first two to three days are critical.*

I-35. Palpating muscle mass is as good a method of determining weight and condition as actually weighing the animal. (T/F)

False.

I-36. Accurate body weights are necessary in determining which of the following?

- a. fluids for replacement or maintenance c. proper growth or maintenance
- b. caloric requirements d. all of the above

d.

I-37. A towel or blanket and heavy (e.g., welder's) gloves are two basic items useful for handling animals. (T/F)

True. *However, some animals are much better handled with one or the other (e.g., a porcupine should not be handled with a towel or blanket).*

I-38. The proper method for using a catch-pole is to encircle the loop around the animal's neck and pick it up. (T/F)

False. *The proper method for using a catch-pole is to encircle the loop around the animal's head and a forelimb. This way, you will prevent strangling the animal as you tighten the loop.*

I-39. Catch-poles and nets can be useful for handling larger animals. (T/F)

True.

I-40. Stress should be reduced as much as possible while handling and examining an animal for medical problems. (T/F)

True.

I-41. It is not necessary to perform a routine physical exam on an animal if there are no obvious problems. (T/F)

False. *Any wild animal that can be captured by a person is most likely in a weakened condition. Just because there are no obvious wounds, you should not assume that this animal is healthy. Medical problems with very subtle clinical signs may be discovered by thorough physical examinations.*

I-42. A snake preparing to shed its skin cannot see well and may be likely to strike. (T/F)

True.

I-43. The term for excessive elevation of body temperature characterized by panting, increased respiratory and heart rates is:

- a. anemia b. hypothermia c. hyperthermia d. acidosis

c.

I-44. Excessive heat loss and decrease in body temperature characterized by shivering, puffed up feathers or fur and extremities that feel cold to the touch is called:

- a. hyperthermia b. anemia c. acidosis d. hypothermia

d.

I-45. Open-mouth breathing and panting can be signs of:

- a. starvation b. overheating and stress c. chilling d. dehydration

b.

I-46. It is necessary for rehabilitators to have a veterinarian willing to work with them. (T/F)

True.

I-47. In a mammal, a simple but useful test for dehydration is pulling up an area of skin along the mid-back and judging the time taken for it to return into place. (T/F)

True. *An area of loose skin is pinched along the mid-back. Once released, it should return to its normal position in 2-3 seconds. If it remains standing out, the animal is dehydrated. Adequate hydration is necessary for normal skin turgor and elasticity. Skin turgor (the ability of skin to return to normal after being pulled upward) varies somewhat with the age of the animal; the older adults and infants tend to have slower return to normal.*

I-48. The use of a well-fitting hood for raptors in rehabilitation is:

- a. unnecessary and cruel
b. a means of reducing stress for the bird during treatment
c. not as efficient as a towel
d. necessary when no cages are available

b.

I-49. When examining most birds, it is important not to cover their heads, so they may breathe more easily. (T/F)

False. *For most species of birds, it is preferable to cover their heads while you perform a physical exam. Place a towel or cloth gently over the head of the bird without obstructing its breathing. Falconers' hoods are very useful for examination of hawks. This darkened environment is much less stressful than if the bird is able to see you and its surroundings.*

I-50. You may restrict a bird's ability to breathe by holding it too tightly around the chest. (T/F)

True. *Birds do not have a diaphragm muscle to assist in respiration. They depend primarily on movement of the chest wall for inhalation and expiration of air. If movement of the chest wall is restricted by holding them too tightly, they will not be able to breathe properly and may die.*

I-51. You have a young raptor that repeatedly opens its mouth, as if it is gasping or about to vomit. The bird:

- a. has an ear problem
 - b. is a victim of secondary poisoning
 - c. is displaying aggression
 - d. is trying to egest a pellet
- d.** *Egesting (regurgitating) undigested parts of prey is a normal behavior in all raptors.*

I-52. You receive an injured turkey vulture. While conducting an examination, the bird vomits a foul smelling material. The bird:

- a. is using a natural defense mechanism
 - b. has ingested a poison and should receive supportive treatment
 - c. has eaten spoiled food and may have botulism
 - d. has avian flu which is a reportable disease
- a.** *Vultures often feed on partially decomposed, rotting carcasses. One of their defenses against predators is to regurgitate this smelly material on any animal that disturbs or frightens them.*

I-53. Accipiters are high-strung, nervous raptors that easily become hypoglycemic. (T/F)

True. *These hawks (sharp-shinned, Cooper's and goshawk), which generally specialize in eating birds, have a tendency to develop seizures from low blood sugar (hypoglycemia) if they are stressed or go without food for long.*

I-54. An owl nestling that has cataracts (opacities of the corneas of the eyes) is permanently blind and should be euthanized. (T/F)

False. *Cataracts are normal in young owls, and will resolve with age.*

J. WOUND MANAGEMENT AND SPECIFIC MEDICAL PROBLEMS

J-1. Epoxy is a good material to use in repairing cracked turtle shells. (T/F)

True. *However, you must clean the underlying wound thoroughly and be sure there is no infection before sealing the shell.*

J-2. Avian pox is a viral infection that causes lesions on the unfeathered portions of the skin of birds. Per se, it is not a life-threatening illness. (T/F)

True. *However, avian pox may contribute to or accompany conditions that are life-threatening.*

J-3. *Trichomonas gallinae* may be killed by freezing food items. (T/F)

True.

J-4. Avian pox can be treated effectively with penicillin. (T/F)

False. *Avian pox is caused by a virus. Viruses are often difficult to control, as there are few anti-viral drugs available. Antibiotics such as penicillin are only effective at killing bacteria; they have no activity against viruses. Pox is treated with supportive therapy.*

J-5. An experienced rehabilitator can distinguish between trichomoniasis and candidiasis by visual examination. (T/F)

False. *Trichomoniasis is a condition caused by a protozoal parasite (*Trichomonas gallinae*) that may produce excessive salivation and caseous lesions in the mouth and throat. Most commonly, it affects pigeons and doves, but it may be transmitted to raptors when they eat infected prey. Candidiasis is a fungal disease that can produce similar lesions in the mouth, esophagus and crop. Candida infections are often associated with birds given long-term antibiotic therapy or suffering from a lack of vitamin A. Diagnosis of these diseases is based on microscopic examination of material obtained by a throat swab.*

J-6. Candidiasis is found in the esophagus, crop and eye; it is characterized by raised patches of necrotic tissue that have a foul odor. (T/F)

True.

J-7. Trichomoniasis usually is transmitted to raptors by ingestion of contaminated food and is often found in pigeons, doves and quail. (T/F)

True.

J-8. Cheesy, proliferative lesions in the mouth require microscopic diagnosis to confirm trichomoniasis. (T/F)

True.

J-9. Candidiasis may result from long-term antibiotic therapy. (T/F)

True.

J-10. A red fox that has been hit by a car is brought to you. It is unable to support weight on its right front leg, though there are no open wounds visible. Upon further examination, you notice a swelling in the middle of the leg. You believe this fox has a mid-shaft fracture of its radius and ulna. Proper management of this type of injury includes:

- a. placing the fox in a large cage in a quiet location to allow it to recover
- b. applying a splint from the joint above to the joint below the fracture site, then contacting a veterinarian
- c. applying a small bandage directly around the site of the fracture
- d. beginning oral antibiotics for two to three days

b. *This type of fracture is termed a “closed” fracture, because there is no break in the skin to allow contamination of the bone fragments by debris or bacteria. In the management of any fracture, immobilization of the limb is important to prevent further damage at the fracture site. Some closed fractures may be managed just with a splint; however, others require surgical placement of a pin within the bones. Until a veterinarian can be contacted, stabilization of the limb will prevent further damage.*

J-11. Kitten flea powder is generally less toxic to wildlife than other flea powders. (T/F)

True.

J-12. An animal is brought to you that has a large, old leg wound with a dry fragment of bone protruding from it. You should do which of the following:

- a. apply some topical antibiotics to the wound, wrap the leg and begin oral antibiotics for two or three days
- b. flush the wound well with saline, cover it with a bandage then try to apply a splint to stabilize the fracture
- c. try to sterilize the wound by flushing it with alcohol, then apply a splint to the leg to stabilize the fracture
- d. call your veterinarian. This fracture may not be repairable, and it may be necessary to euthanize the animal.

d. *This is not a recent fracture, so waiting a few more hours until the veterinarian can examine it is probably not critical. It is probably better to let the animal rest and drink water than to stress it by handling it a great deal. Do not put alcohol in the wound.*

J-13. A local resident brings you a red-winged blackbird that is unable to fly. Upon examination, you feel what seems to be a minor fracture in the middle of the forewing (radius and/or ulna). The bird is alert and good weight. An appropriate course of action would be to:

- a. apply a tape splint anchoring the wing to the body
- b. euthanize the bird because it will never be able to fly again
- c. place the bird in a cage and allow the wing to hang freely until it is healed
- d. manipulate the wing vigorously to determine its range of motion

a. *As long as it can be determined that the wing bones are in good alignment, this type of injury usually will heal with adequate immobilization of the wing. It can be taped gently in a flexed position and anchored to the body. Don't apply any bandage so tightly it impairs the bird's ability to breathe normally. The splint should be examined daily for any signs of problems such as swelling, tissue abrasions or impaired circulation. In larger birds such as raptors, a splint might not be adequate and surgical repair could be necessary.*

J-14. Diarrhea can indicate:

- a. intestinal infection
- b. stress
- c. improper diet
- d. all of the above

d. *Diarrhea is a clinical sign or symptom. Without further information from a physical exam or laboratory tests, you have no idea what the cause might be.*

J-15. What is the common bacterial infection affecting the feet of birds, especially raptors, that can be aggravated by improper perches?

- a. septicemia
- b. bumblefoot
- c. hypoglycemia
- d. ringworm

b. *Septicemia refers to an infection that has entered the blood stream. Hypoglycemia is defined as low blood sugar. Ringworm is a fungal disease of the skin.*

J-16. Raccoons suspected of having parvovirus should be quarantined during treatment. (T/F)

True. *Parvovirus is a highly infectious viral disease that often causes severe diarrhea. Although not a problem for people, it may spread to other raccoons.*

J-17. Animals suffering from diarrhea can remain on solid foods as long as they receive supplemental fluids. (T/F)

False. *For any animal with diarrhea, it is best to discontinue feeding for 12-24 hours. This allows the gastrointestinal tract to rest and heal. Supplemental fluids (either orally, SQ or by another route) often are required to prevent dehydration.*

J-18. Addition of antibiotics to the drinking water is the best way to medicate many species. (T/F)

False. *This method has several problems such as inaccuracy in doses, decreased efficacy after exposure to water and air, and the fact that many sick animals don't drink much. It is almost always preferable to give medications directly to the animal either orally or by injection. However, long-term treatment protocols for some diseases (such as "finch eye") specifically call for the addition of antibiotics to drinking water.*

K. PARASITES AND FECAL ANALYSIS

K-1. If the feces (droppings) of a one-month-old raccoon are examined for raccoon roundworm (*Baylisascaris procyonis*) and the test is negative, this raccoon still may be infected with roundworms that have not yet matured and started to produce eggs (ova). (T/F)

True. *Assume all raccoons carry the roundworms. Raccoons should be wormed regularly starting at a young age.*

K-2. Raccoon roundworm eggs deposited outdoors may remain alive up to:

- a. one month b. six months c. one year d. ten years

d. *That is why you should consider any enclosure used to house raccoons permanently contaminated and not use it for any other species.*

K-3. Which of the following can be used to kill the eggs of the raccoon roundworm?

- a. a blow torch b. iodine solutions c. bleach d. detergent and hot water

a. *Ideally, you should house raccoons only in stainless steel cages that can be flamed to incinerate the eggs after each raccoon leaves.*

K-4. Bird feather lice:

- a. do not bite or transmit diseases to people c. are sometimes carriers of Lyme disease
b. bite and suck blood like mosquitoes d. can jump like fleas

a. *However, these mallophagan lice are thought to transmit several avian diseases.*

K-5. You are caring for a young red fox with diarrhea. You do a single fecal examination and find no evidence of parasite eggs in the stool sample. Which of the following statements is true?

- a. The diarrhea definitely is not due to parasites.
b. The diarrhea is caused by a bacterial infection.
c. Repeated fecals may be necessary to rule out parasites as the cause of the diarrhea.
d. The diarrhea is diet related.

c. *When looking for evidence of internal parasites, it is often necessary to examine several stool samples. Many parasites only shed eggs sporadically, so eggs may not be evident in every stool produced. One negative fecal does not completely rule out the possibility of internal parasites as the cause of a problem. Any animal infected with internal parasites may still have a single negative fecal. If parasites are suspected to be the cause of diarrhea, repeated fecal examinations over several days to weeks may be required.*

K-6. Fecal samples are valuable for testing for the presence of internal parasites. (T/F)

True.

K-7. Many parasite eggs can be detected in a stool sample by use of the methods of fecal flotation or sedimentation. (T/F)

True. *All fecal samples should be examined while fresh. Initially, the sample should be inspected visually for signs of tapeworm segments. Then, through the use of fecal flotation or sedimentation, the sample can be examined for other parasite eggs such as roundworms, hookworms and coccidia (small single-celled parasites). Either procedure is simple to learn. Because of the small size of the parasite eggs, use of a microscope is required to see them. The fecal flotation examination involves mixing the feces with a concentrated solution that will, by gravity, suspend the parasite eggs --the solution is heavier than the eggs, so the eggs will float to the top. A direct smear of feces is also a useful test for protozoa (single-celled organisms) and trematode eggs. A fresh fecal sample is mixed with a drop of water on a microscope slide then examined under a microscope.*

K-8. Food and water dishes, cages and other objects used for raccoons should be separated from those used for other mammals and birds to prevent the spread of:

- a. *Baylisascaris* b. brucellosis c. chlamydiosis d. aspergillosis

a. *Baylisascaris procyonis is the common roundworm parasite of raccoons. This parasite is contracted through oral-fecal transmission and usually causes few problems in the raccoon itself. The ova excreted in the feces of infected raccoons can live for a very long time in the environment. When ingested by other mammals, birds or humans, the larvae that hatch have an affinity for the central nervous system. The resultant central nervous system disease is frequently fatal. Because of the high incidence of Baylisascaris infection in raccoons and the movement of raccoons into suburbs and cities, the potential for human infection is high. People can become infected by accidentally ingesting infective eggs from raccoon feces, contaminated soil or water, or via contaminated hands. Diagnosis of Baylisascaris in raccoons is achieved by fecal examination or by finding adult worms in feces or vomitus.*

K-9. You have several baby opossums that you have been hand-feeding. Two new ones are brought in to you, and you notice large areas of hair loss and crusting on their stomachs and hind legs. Because it is easiest to feed all the opossums at the same time, you decide to add these two to the feeding schedule. You should:

- a. feed the two new babies first because they are hungriest then feed the others.
 b. put them all in the same cage, so you won't forget to feed any of them.
 c. feed the new babies last and use care when handling, because they may have a disease contagious to humans as well as to other opossums.
 d. euthanize the two new babies, because their skin condition indicates a more serious problem and they may die anyway.

c. *Isolation of any animal that may have a contagious disease is essential. There are several diseases with this collection of signs such as ringworm, sarcoptic mange and allergic skin disease. To differentiate between these conditions, it would be necessary to contact a veterinarian so several diagnostic tests could be performed.*

K-10. Fecal flotation and sedimentation are two methods for collecting the eggs of internal parasites for identification. (T/F)

True.

K-11. Intestinal parasites are a common cause of diarrhea. (T/F)

True.

K-12. If a fecal sample tested for internal parasites is negative, there is no reason to run another test a few weeks later. (T/F)

False. *Because parasite ova are shed in the stool sporadically, it is always a good idea to do several fecal exams when internal parasites are suspected.*

K-13. Raptors usually get trichomoniasis by ingestion of contaminated food. The parasite is found often in pigeons and doves. (T/F)

True.

K-14. Healthy animals normally have many ectoparasites. (T/F)

False.

K-15. Mange is caused by mites and is:

- a. best treated with an antibiotic
 - b. best treated with a topical pesticide or Ivermectin®
 - c. transferred readily among social mammals
 - d. b and c
- d.**

L. ENVIRONMENTAL TOXICOLOGY

L-1. Which of the following signs may be seen in birds suffering from pesticide poisoning?

- a. convulsions
- b. respiratory difficulty
- c. incoordination or paralysis
- d. all of the above

d. *The clinical signs seen in birds exposed to environmental pesticides are very non-specific. Incoordination, weakness, diarrhea, respiratory distress, tremors, paralysis and convulsions may be seen in a variety of conditions, including trauma, viral, parasitic and bacterial diseases. The history taken on a particular animal becomes extremely important in deciding on the most likely diagnosis; there are few specific diagnostic tests available for living animals. Upon necropsy, the absence of other obvious causes of death may suggest the possibility of exposure to a toxin. Diagnosis of such a condition should be made by a veterinarian.*

L-2. Lead poisoning is always detectable from an x-ray. (T/F)

False. *Blood tests or liver biopsies may be required.*

L-3. Waterfowl may get lead poisoning by ingesting shotgun pellets that are in marshy areas where they forage for food. (T/F)

True.

L-4. Raptors primarily get lead poisoning from:

- a. ingesting pellets that are present in the tissues of their prey
- b. fall-out from nuclear power plants
- c. being shot with lead pellets, which remain embedded in their muscle tissue
- d. eating lead paint chips around housing

a.

L-5. If you admit an oil-covered bird that was found washed up on a beach, you should:

- a. wipe the bird down with turpentine, and then wash with cold water and a mild soap like Ivory
 - b. notify IF&W, because there is the possibility of an oil spill
 - c. refer the bird to someone who has taken oil spill training and is familiar with the washing and treatment protocol
 - d. b and c
- d.**

M. EPIZOOTIC DISEASES

M-1. An epizootic disease is:

- a. one that attacks a large number of animals simultaneously, similar to an epidemic in humans
 - b. transmissible from animals to humans
 - c. only contagious among birds
 - d. a problem that is extremely rare in the United States
- a.**

M-2. You observe a raccoon wandering aimlessly. You notice convulsive movements of the head, and discharge from the nose and eyes. The raccoon most likely has contracted:

- a. distemper
 - b. rabies
 - c. trichomoniasis
 - d. leptospirosis
- a.**

M-3. Which of the following statements about distemper in wildlife is false?

- a. the symptoms often resemble those of rabies
 - b. raccoons, foxes and skunks are all commonly affected
 - c. the symptoms often include a runny nose and eyes, disorientation, and lack of fear
 - d. a raccoon with distemper, found walking in circles in someone's yard, can probably be saved if taken to a veterinarian right away
- d.**

M-4. You begin to examine an adult mallard duck, which appears to be paralyzed. It is unable to use its wings for flight and has difficulty moving its legs. The nictitating membranes cover both eyes and appear swollen and inflamed. A disease that may cause these signs and that is sometimes seen in waterfowl due to the ingestion of a bacterial toxin is:

- a. tetanus
- b. botulism
- c. aspergillosis
- d. chlamydiosis

b. *Avian botulism is a disease caused by Clostridium botulinum, which is anaerobic bacteria (can live without oxygen). Its toxin produces an often-fatal progressive paralysis. Botulism can affect shorebirds, waterfowl, herons and pheasants in the wild. The disease often begins with paralysis of the wings, followed by paralysis of the legs. The nictitating membrane may become paralyzed, causing the eyes to become swollen and inflamed. Finally, paralysis spreads to the neck causing the typical "limberneck" symptom, and respiratory failure can follow. The bacteria are found commonly in soil and thrive in a warm anaerobic environment, such as shallow water heated by the sun. While feeding, birds ingest invertebrates that have the toxin in their tissues. Symptoms can develop within hours. It is important to treat the victims as early as possible. Birds presented in early stages of paralysis have been treated successfully by repeated gavage with electrolyte solutions to flush the digestive system of both the toxin and the bacteria. An antitoxin is available and is sometimes useful in large outbreaks.*

M-5. Mycoplasmal Conjunctivitis (or “finch eye”) is spread by:

- a. eating contaminated foods
 - b. physical contact with infected birds
 - c. contact with eye secretions from infected birds on the portals of tube feeders
 - d. any or all of the above are possible.
- d.** *The mechanism by which this disease is spread is not definitively known, but all of the above are considered as possibilities.*

M-6. West Nile Virus is seen only in crows. (T/F)

False. *WNV has been identified in more than 100 species of birds. The corvid family (which includes crows, ravens and jays) seems to be particularly susceptible, however, as do some raptors (great-horned owls and red-tailed hawks).*

M-7. Humans can easily contract West Nile Virus from touching even just the feathers of infected birds. (T/F)

False. *WNV is spread by mosquitoes. However, a human may contract the virus if blood from an infected bird enters the person’s bloodstream.*

M-8. Which of the following may be clinical signs of West Nile Virus?

- a. anorexia and weight loss
 - b. excessive sleeping
 - c. head tremors, ataxia, and weak legs
 - d. all of the above.
- d.**

M-9. Some animals infected with West Nile Virus will recover, if given supportive care. (T/F)

True. *Fluids, warmth, and good nutrition are indicated.*

M-10. Mammals cannot contract West Nile Virus. (T/F)

False.

N. ZOONOTIC DISEASES

N-1. Zoonotic diseases are those that are transmissible from animals to people. (T/F)

True.

N-2. Which of the following is a virus capable of causing disease in all mammals, including humans, and is transmitted usually through contact with an infected animal’s saliva?

- a. aspergillosis
 - b. ornithosis
 - c. rabies
 - d. distemper
- c.**

N-3. All mammals can transmit rabies. (T/F)

True. *However, this is relatively unlikely in rabbits, rodents and marsupials.*

N-4. Birds do not get rabies. (T/F)

True. *However, it may be possible for raptors to transmit the virus passively. This means that if a hawk has eaten a rabid animal, the hawk may still carry live rabies virus in its mouth for a period of time.*

N-5. Rabies is caused by a virus. (T/F)

True.

N-6. Which of the following is not a high-risk species for rabies?

- a. skunk b. rabbit c. raccoon d. big brown bat

b. *Rabbits, opossums, and most rodents rarely carry rabies; woodchucks (which are rodents) are an exception, though. But remember, they can contract the disease from other rabid animals, so you must still be careful.*

N-7. If a wildlife rehabilitator is bitten by a raccoon or other mammal, the first thing he or she can do to prevent possible rabies infection is:

- a. wash the wound well with soap and water c. see a physician immediately
b. kill the animal d. quarantine the animal

a.

N-8. If you are bitten by a wild mammal you are caring for, which of the following should you do?

- a. wash the wound, euthanize the animal, send in its head for a rabies examination
b. wash the wound out well and forget about it
c. wash the wound, quarantine the animal for two weeks
d. release the animal as soon as possible

a. *With the significant threat of rabies, it pays to be cautious. Always wash such wounds carefully with soap and water. The animal should be euthanized, and its head submitted for a rabies examination (refrigerate, do not freeze). While awaiting results, notify your family physician. Because some wildlife species (e.g., skunks) may incubate rabies for long periods, quarantine is not considered acceptable.*

N-9. Quarantining wild animals for a ten-day period is sufficient for determining rabies infection. (T/F)

False. *The incubation period for the rabies virus is extremely variable. Clinical signs appear in the majority of cases within 15 to 25 days but occasionally the incubation period may be delayed for a much longer period of time. If people or domestic animals have been exposed, no quarantine is sufficient; the wild animal should be euthanized and examined for rabies.*

N-10. Which of the following is not zoonotic (a disease or parasite that can cause illness to a person handling wildlife)?

- a. Lyme disease c. raccoon roundworm (*Baylisascaris*)
b. distemper d. rabies

b. *Distemper is a viral disease, which can cause disease in many mammals, but not in humans. Lyme disease is transmitted by ticks and can affect people. Eggs (ova) of the raccoon roundworm can be ingested by people or other warm-blooded animals and cause serious or fatal disease. Rabies is a virus capable of causing fatal disease in all mammals, including humans.*

N-11. In species other than raccoons, which of the following symptoms can be caused by *Baylisascaris procyonis* (raccoon roundworm)?

- a. central nervous system abnormalities c. death
b. blindness d. all of the above

d.

N-12. Humans may become infected with raccoon roundworms by:

- a. eating undercooked raccoon meat
- b. swallowing something contaminated with roundworm eggs
- c. coming in contact with the blood of a raccoon killed on the highway
- d. being bitten by a raccoon showing nasal discharge, weeping eyes and matted greasy fur
 - b.** *Objects near where the raccoon has defecated may contain parasite eggs. Tree bark, grass, soil, bedding, etc. may become contaminated easily.*

N-13. Although *Baylisascaris procyonis* (raccoon roundworm) can be spread to humans, it is not particularly harmful to humans. (T/F)

False. *Raccoon roundworm is potentially fatal in humans.*

N-14. A widespread, bacterial, zoonotic disease of birds, mammals and reptiles, which has fecal-oral transmission, and is commonly found in wild animals with diarrhea is:

- a. salmonella
 - b. distemper
 - c. chlamydiosis
 - d. rabies
- a.** *Salmonella infection occurs commonly in birds, mammals, reptiles and humans. Transmission is primarily through the ingestion of fecal material from an infected animal. The infection may not manifest itself with clinical signs. The animal may have a latent infection, harboring the pathogen in its lymph nodes, later shedding the organism in its stool intermittently. In all species, clinical signs include; abdominal pain, vomiting and diarrhea. Prevention of the spread of this disease depends primarily on good hygiene. Washing your hands before and after handling any animal and especially in between ill animals is important.*

N-15. Salmonella infection is transmitted easily from:

- a. mammals to mammals
 - b. birds to birds
 - c. birds to humans
 - d. all of the above
- d.**

N-16. Which of the following is a zoonotic fungal disease that is transmitted through the inhalation of spores?

- a. chlamydiosis
 - b. aspergillosis
 - c. distemper
 - d. scabies
- b.** *Aspergillus is a fungus that can survive in a variety of different environmental conditions. An important source of infection is fungus-contaminated bedding. Aspergillosis in birds is a chronic disease with variable signs, including respiratory distress and abnormal respiratory behavior. It is an uncommon disease and is more likely to be seen in people weakened by other diseases or who are on long-term treatment with antibiotics or corticosteroids.*

N-17. In order to contract rabies, it is necessary to be bitten by an infected animal. (T/F)

False. *Rabies can be spread by contact of an infected animal's saliva with tiny skin cuts.*

N-18. Which of the following species has tested positive for rabies in Maine?

- a. bats
 - b. raccoons
 - c. skunks
 - d. all of the above.
- d.**

O. IMMUNIZATION STANDARDS

O-1. Rehabilitators handling mammals should consider pre-exposure immunization against rabies. (T/F)

True.

O-2. Because skunks are very susceptible to rabies, before you release any that have been raised as orphans, it is important to ask your veterinarian to inoculate them with a modified live virus vaccine for rabies. (T/F)

False. *Killed rabies vaccine may be given to wildlife (though it is considered an "off-label" use). It is neither endorsed nor prohibited by the State of Maine.*

O-3. While handling an adult raccoon, you receive a bite to your palm. There are several diseases that you may contract from this type of injury. Because of your exposure to wild species and your increased risk for injury, it is recommended that rehabilitators be vaccinated against:

- a. rabies and tetanus
- b. rabies and distemper
- c. rabies and salmonella
- d. tetanus and distemper

a. *Rabies is a viral disease that almost always results in the death of the infected individual or animal. Transmission occurs through the contamination of a wound, or break in the skin, with the virus-laden saliva of an infected animal. Pre-exposure immunization is recommended to high-risk individuals such as veterinarians and wildlife rehabilitators. Avoiding contact with high-risk animals also prevents exposure. Any injury, including animal bites, can result in tetanus. Tetanus is caused by an anaerobic bacteria found in soil and human and animal feces. The portal of entry is through a wound contaminated with soil or feces. In people, the disease is characterized by stiffness and painful contractions in muscles of the jaw and neck. All wounds should be cleaned and debrided thoroughly and vaccination with tetanus toxoid should be current.*

P. FACTORS IN RELEASING REHABILITATED WILDLIFE

P-1. One good way to release young gray squirrels is to open the door of their outdoor cage and let them come and go as they wish, while continuing to provide food in the cage until they no longer return. (T/F)

True. *However, the door must be closed at night to keep predators and scavengers out. Also, release at your facility may be inadvisable if you live in a congested, high-traffic area, or if you have neighbors who do not want wildlife on their property.*

P-2. If you are planning to release a red-tailed hawk and find it has one broken tail feather, the best solution is to:

- a. keep the bird until a new feather has molted in
 - b. pull out the broken feather
 - c. repair the broken feather by imping
 - d. go ahead and release the bird
- d.** *A single broken tail feather will not interfere with the bird's ability to fly.*

P-3. In August you receive a red-tailed hawk that has collided with a power line and broken several primaries and tail feathers. There are no other injuries. You should:

- a. keep the bird until new feathers molt in
 - b. induce molt by manipulating photoperiod in an indoor cage
 - c. pluck the damaged feathers and await new growth
 - d. imp the damaged feathers, check flight capability and release
- d.** *Imping is an old falconry technique in which broken flight feathers are repaired by gluing on pieces of similar feathers saved from another bird of that species (or, if necessary, from a species having similar feathers). Rehabilitators who handle many raptors may save a small number of feathers, either from molts or dead birds, to use for imping. Repairing feathers by imping will*

allow you to get this bird back to the wild in the shortest possible period. Plucking large flight feathers may damage the tissues in the skin from which new feathers grow. Manipulating photoperiod is not a reliable way to induce molt. Keeping the bird for nearly a year until it molts naturally is unnecessary and will lead almost surely to other problems of captivity. You can learn imping at many rehabilitators meetings and symposia.

P-4. One of the most important factors to the success of releasing a rehabilitated animal is:

- a. releasing the animal in its natural habitat
- b. releasing the animal on a weekend, so people are more likely to find it if it gets into trouble
- c. releasing the animal on a weekday, because people are likely to be at work and not bother it
- d. releasing all your rehabilitated animals in the same place

a.

P-5. Releasing healthy, prepared animals back into suitable habitats is the major goal of rehabilitation. (T/F)

True.

P-6. Normal body weight is a factor in considering the release of an animal. (T/F)

True.

P-7. Young birds should have the opportunity to forage for several days in a flight cage before they are released. (T/F)

True.

P-8. An improperly imprinted bird is a behavioral misfit and should not be released. (T/F)

True.

P-9. As long as an animal is healthy, it does not matter what time of day it is released. (T/F)

False. *Animals should be released early in their activity cycle. It would be a mistake to release a nocturnal animal such as an owl or opossum on a bright, sunny morning. Dusk would be a more appropriate hour. Similarly, a blue jay should be released in the morning, so that it has plenty of time to find food and shelter before dark.*

P-10. A nocturnal mammal or bird should be released:

- a. during the day
- b. in the middle of the night
- c. at dusk
- d. the time of day is not important

c.

P-11. If a broad-winged hawk has recovered from its injuries during the fall, it is appropriate to release it in December. (T/F)

False. *It is important to release migratory species early enough in the year to enable them to leave at the appropriate time. Broad-wings all migrate south in September and early October. This bird would starve or succumb to frostbite if released this late. It should either be held over the winter or transported to a rehabilitator in the south for release.*

P-12. Soft release ("hacking out") of any young animal is an optimal method for release training. It simulates a more natural decrease in dependence on its parents. (T/F)

True. *In a soft release, the rehabilitator continues to provide food for the animal until it is able to locate food on its own.*

P-13. An animal needs to be acclimated to the outdoors before it can be released. (T/F)

True.

P-14. The carrying capacity of an area for the species being released is not an important consideration. (T/F)

False. *Carrying capacity is the term used to describe the optimum size of a wildlife population in a given area. If too many animals of a given species are present, they may damage the habitat, thus making it harder for themselves and other species to survive. This problem is regularly seen in suburban parks with too many deer, which destroy much of the vegetational cover.*

P-15. Knowledge of an animal's natural history and resource needs are important in determining release sites. (T/F)

True.

P-16. Gray squirrels should be released early enough in the fall to cache (hide) food for the winter and to find shelter. (T/F)

True.

P-17. Birds of prey imprinted on humans, or a species other than their own, should still be released if otherwise healthy. (T/F)

False.

P-18. Since many nocturnal owls use audition as well as vision to locate prey, it is important that their hearing be tested after a head trauma. (T/F)

True.

P-19. A wild animal raised as a pet can be returned to the wild successfully once it gets large and aggressive. It will instinctively know what to do to survive. (T/F)

False. *Although release may be possible in some circumstances, it will probably take considerable time for you to help this animal to develop its survival skills. It is also important that a site away from people be chosen carefully.*

P-20. It is a good idea to check the weather forecast prior to a release. (T/F)

True. *Although summer thunderstorms are not always predictable, it is rarely a good idea to release an animal into a period of predicted severe weather. One rule of thumb is 48 hours of "good" weather ahead.*

P-21. Young birds and mammals can be released as soon as they can eat adult food. They will learn hunting and food-gathering skills on their own. (T/F)

False. *Most young animals have a period of dependence on their parents, who help them learn to hunt or otherwise find food.*

P-22. What is the term for the release training technique that involves placing food at a feeding station to supplement a young hawk's diet while it learns to catch its own food?

a. hawking b. fledgling c. hacking d. fostering

c. *This term is often used by rehabilitators to mean a "soft" release of any species.*

P-23. Which problem in each of the following animals would prevent the successful release of the individual back into the wild?

- a. loss of vision in a red-tailed hawk
- b. loss of a digit in the hind foot of a raccoon
- c. loss of one eye in a red fox
- d. loss of the tip of an ear in a rabbit

a. *Permanent loss in the sense organs, such as sight or hearing, must be viewed with respect to the species affected. Certain species may cope better with individual physical limitations than others. A raptor depends heavily on sight for capturing prey and would starve quickly if unable to hunt. Serious debilities that impair normal functions such as hunting, foraging or avoiding predators, ultimately will prevent survival in the wild.*

P-24. Small streams and ponds are suitable release sites for all types of geese and ducks. (T/F)

False. *Many diving ducks and sea ducks must be released on larger areas of open water. Some species (e.g., eiders) should be released only along the sea coast.*

P-25. Habitat selection for release should meet which of the following criteria?

- a. food and water, cover or shelter, close proximity to humans
- b. cover or shelter, spatial needs, close proximity to humans
- c. food and water, cover or shelter, spatial needs
- d. food and water, spatial needs, close proximity to humans

c.

P-26. Which of the following should help a rehabilitator determine if an animal is ready for release?

- a. body weight
- b. recognition of native food
- c. weather conditions
- d. all of the above

d.

P-27. When it is determined that an individual animal is incapable of being released successfully to the wild, one could:

- a. release it anyway and hope for the best
- b. place it
- c. euthanize it
- d. b or c

d. *Answer a is considered to be morally unacceptable if you are sure that the animal cannot survive on its own.*

P-28. What behavioral considerations are important for an animal to exhibit before it can be released?

- a. competent foraging behavior
- b. species recognition and socialization with its own kind
- c. predator avoidance
- d. all of the above

d.

P-29. Fledgling raptors are excellent hunters as soon as they can fly. (T/F)

False. *Although young raptors have innate hunting skills, they must practice these skills to become proficient. They should have ample opportunity to attempt to kill live prey before release.*

P-30. In general, it is a good idea to release adult animals close to where they were found. (T/F)

True. *However, an exception to this rule would be a location that poses a danger.*

Q. EUTHANASIA AND DISPOSAL OF DEAD ANIMALS

Q-1. The most important factor in choosing a method of euthanasia is:

- a. weight of the animal
 - b. whatever is most readily available
 - c. skill of the rehabilitator to perform the euthanasia humanely and safely
 - d. preferences of the person who found the animal
- c.**

Q-2. Humane euthanasia is a necessary part of rehabilitation. (T/F)

True.

Q-3. Post mortem examinations are essential to good rehabilitation. (T/F)

True. *However, be sure to protect yourself from zoonotic diseases: at a minimum, wear gloves. Other devices such as goggles and nose masks may be appropriate as well.*

Q-4. Carcasses of animals that have been euthanized by injection of a lethal drug may be:

- a. buried in your yard
 - b. fed to a carnivorous species
 - c. disposed of by cremation
 - d. sent to the local dump with other trash
- c.** *There are several drugs available for euthanasia by injection that can be administered by a veterinarian. These drugs can be toxic if eaten. All animals euthanized by this method must be disposed of in a way that ensures they will not be eaten by scavengers.*

Q-5. In choosing a method of euthanasia, which of the following factors should be considered?

- a. use of a technique which minimizes stress and pain to the animal
 - b. the experience of the rehabilitator with the technique
 - c. the degree of safety of the technique to the rehabilitator
 - d. all of the above
- d.** *Numerous methods of euthanasia are available. If your veterinarian performs euthanasias for you, she or he will inject drugs that cause death rapidly and painlessly. For home-based rehabilitators who wish to do their own euthanasias, the most commonly-used agent is carbon dioxide (CO₂). This method requires placement of the animal in a tightly sealed container of CO₂ vapor; preliminary anesthesia is desirable. Other inhalants such as chloroform and ether are potentially very hazardous for the user. Sharp blows to the head are only suitable as a method to be used with small mammals. Gunshots to the brain should only be performed by those knowledgeable with the technique. Neither drowning nor confinement in an air-tight container is considered humane.*

Q-6. You have been caring for a young rabbit that has had severe diarrhea for several days. A fecal examination was negative. Eventually the rabbit dies. You may dispose of its body by:

- a. deep burial
 - b. incineration
 - c. feeding to a predatory species
 - d. a or b
- d.** *A single fecal examination is not definitive evidence of a lack of parasites in this animal. The eggs passed in the stool with parasitic infections may be shed sporadically, so they may not be seen in a single fecal examination. Repeated fecal exams are necessary to accurately eliminate parasites as the cause of the illness. Other possible infectious agents might be responsible for this rabbit's diarrhea. Therefore it is preferable to dispose of the carcass as if it carried a contagious disease. Do not dispose of the carcass in a location where it may be eaten by scavengers.*

Q-7. Acceptable methods of euthanasia for cold-blooded vertebrates include placing them in a freezer. (T/F)

False. *Techniques of euthanasia must be evaluated carefully before being used in reptiles and amphibians. Both reptiles and amphibians have adaptations that allow them to survive prolonged periods of oxygen deprivation. Techniques, such as the use of CO₂ or other inhalation agents, may be inadequate. The only technique currently recommended is to anesthetize the animal and then either utilize IV or IC euthanasia drugs or destroy the central nervous system.*

Q-8. When deciding whether to continue treatment or to euthanize an animal, factors to consider should include:

- a. the availability of an effective and humane course of treatment
- b. once treatment is completed, whether the animal will be able to re-enter the wild with a reasonable chance of survival.
- c. if an animal is not releasable, whether there is justification for keeping it in captivity other than just to avoid euthanasia
- d. all of the above

d. *The decision of euthanasia is a difficult one. Experience will enhance your ability to make the correct decision. Euthanasia should be viewed as a painless way to end suffering. If an animal cannot function normally in its natural habitat, it will not survive.*

R. COMMON TELEPHONE PROBLEMS

R-1. A caller tells you that her six-year-old just found a fledgling blue jay under a bush in the yard and wants to bring it to you for help. The proper response is:

- a. bring it right in
- b. look for a nest nearby and put the baby back in it
- c. put the baby right back where it was found, or in close proximity
- d. refer the caller to the regional warden's office

c. *The young of many bird species leave the nest before they can fly and spend at least a few days up in the branches of trees (owls), hiding under bushes (many songbirds), or following the parents about on the ground (killdeer). Birds at this stage are called fledglings and should be left where they are. The parents often are not seen because they are deterred by the presence of people. Rest assured -- they are observing close by. Unless the adult birds are known to be dead, or unless a predator (such as an unconfined cat) is aware of and can access the fledgling, resist the urge to raise it in rehabilitation. Parent birds can always do a better job than people can.*

R-2. When a fledgling bird is reported to be “orphaned” but not injured, the best advice is usually to:

- a. take it in immediately for care and rehabilitation
- b. place the bird in a sheltered location nearby and observe from a distance whether the parents return
- c. remain in the yard to observe the bird for awhile
- d. ignore the situation

b.

R-3. If someone calls and says she found a baby robin that cannot quite fly, sitting in a low branch in her back yard, the best thing to do is tell her to bring it over so you can raise it where it will be safe.

(T/F)

False.

R-4. When a person calls about a cat threatening a fledgling bird, the best advice is for him to bring the bird into the house and leave the cat outside. (T/F)

False. *For the bird's survival, it is far better to bring the cat indoors and leave the bird just where it is. As long as the bird has not been injured, its parents will be more successful at raising it properly than you will.*

R-5. A fledgling bird that is just out of the nest but uninjured should be given human assistance immediately. (T/F)

False.

R-6. A fledgling bird should be returned to its nest as soon as possible. (T/F)

False. *By definition, a "fledgling" has already left the nest, so returning it to the nest is pointless.*

R-7. People should be advised to feed weak animals as soon as possible before taking them to a rehabilitator. (T/F)

False. *The public should be encouraged to bring in the animal as soon as it is captured. If it is injured, emaciated or in shock, initial treatment will involve warming the animal and giving supplemental fluids. Once the animal's condition has stabilized, feeding may be attempted.*

R-8. An accurate description of the nest is helpful in identifying baby birds. (T/F)

True. *If a person calls with an orphaned bird, have her note the location of the nest, its height, its size, the material it is composed of, etc. This information will be helpful in identifying the species.*

R-9. Because of parasites, as well as federal and state laws, people should be encouraged to leave natural birds nests outside where they find them. (T/F)

True. *The federal Migratory Bird Treaty Act makes it illegal to possess any portion of a native bird, its eggs or nest. Often the parasites found in bird nests make it unwise to use these old nests to house baby birds that you might be raising.*

R-10. The primary concerns when advising the public on how to handle ailing wildlife are to (first) avoid injury to the handler, and to (second) avoid any further injury to the animal. (T/F)

True.

R-11. When possible, people should be advised to transport wild birds in wire bird cages. (T/F)

False. *It is preferable to advise people to transport wild birds in well-ventilated cardboard boxes using a smooth cloth as bedding. Wild birds are much more likely to injure themselves in a wire cage than a cardboard box.*

R-12. When a bird's nest, containing young, has fallen out of a tree, it is permissible and advisable to try to replace the entire nest (or a substitute nest). (T/F)

True.

R-13. Young, healthy, precocial birds whose parents are not seen should be observed from a distance to see if the parents return before "rescuing" them. (T/F)

True.

R-14. The public should be discouraged from handling any wild animal because of the:

- a. possibility of injuring the animal
 - b. potential for the animal to injure the people
 - c. likelihood that the animal may become too tame
 - d. all of the above
- d.**

R-15. In which of the following circumstances should a person be advised to assist wildlife?

- a. the young seem fat and healthy with no immediate threats
 - b. the parents are not around (though they are not known to be dead)
 - c. the animal is weak, thin, cold or injured
 - d. all of the above
- c.**

R-16. Small rabbits should be rescued:

- a. when the mother leaves the nest
- b. every time they are found by the public
- c. when they run from you
- d. when they are injured or the mother is dead and they are still too young to survive on their own

d. *Finding a nest of young without a mother present does not mean they have been abandoned. Rabbits usually only feed their young at dawn and dusk, and often the adults will stay away from the nest at other times.*

R-17. People finding a fawn with no mother in sight should remove the baby immediately and take it into the house. (T/F)

False. *Very few young animals are really orphans. Fawns may be left unattended for hours, although the doe may actually be concealed from view.*

R-18. If only a short time has elapsed and the exact location is known, a fawn can be returned to the wild and its mother. (T/F)

True.

R-19. A fawn that is presumed orphaned should be observed unobtrusively from a distance for at least several hours to be sure its mother is not nearby. (T/F)

True. *But the key phrase here is "unobtrusively from a distance."*

R-20. Sometimes mother squirrels will attempt to retrieve young that have fallen out of the nest. (T/F)

True. *Keep people and animals away to give the mother the opportunity to come back and get them.*

R-21. Someone calls you about a nestling owl whose nest has been destroyed. It will be 4-5 days before he can get it too you, and you can't pick it up. You should:

- a. call others in the rehabilitators' network and try to find someone who can pick the bird up rapidly
- b. tell him to feed it hamburger until he can get it to you
- c. tell him to leave the owl on the ground near the nest; the adults will care for it
- d. have him drop it off at the local animal shelter.

a. *It is not appropriate to leave this animal very long without the care it needs. If left on the ground, the young owl will almost certainly be eaten by a larger predator. Animal shelters are rarely equipped to handle the needs of young raptors (or other wild birds). If you can't help, other rehabilitators will be glad to come to your assistance.*

R-22. In spring, a caller tells you that a bird is repeatedly flying into her window; this goes on for long periods on a daily basis. This bird:

- a. was probably hand-raised and tamed by a human
 - b. is cold and hungry and is trying to get inside, where there is food and shelter
 - c. sees its reflection in the glass and is attacking what seems to be another bird
 - d. has a neurological problem and should be captured, if possible, and brought in for rehabilitation
- c.** *In the spring, birds are establishing and defending territories. They may chase or even attack intruders, including those they see reflected in mirrors or window glass. If the bird's attacks are limited to a particular part of a particular window, a piece of cardboard can be taped to the outside of the window. Eventually, however, the bird will lose interest in this "rival."*