Biol 11 # Ch 33 REVIEW Answers: Mammals

1. List the characteristics that unify mammals? ***Mammals are endothermic vertebrates that have either fur, hair and/or subcutaneous fat to keep them warm and mammary glands to feed their infants.***
2. What does sub-cutaneous mean? ***Subcutaneous means "below the skin".***
3. How do mammals reproduce? How do their embryos develop? Include information for each of the 3 classes.

All mammals employ internal fertilization.
Monotremes: are oviparous, but feed their hatchlings with mammary glands.
Marsupial: are ovoviviparous. Their embryos feed off of yolk sacs inside the mother's body, and then are born alive. However, they are still too immature to survive, so they crawl up to the marsupium, find a nipple and stay attached there for several months while they complete their development.
Placentals: are viviparous. They have a placenta that exchanges gases, nutrients and wastes for the embryo.

4. What is so interesting about tree shrews? ***They are thought to resemble, in appearance and behaviour, some of the first mammals.***
5. How does a herbivore chew? A carnivore? ***A herbivore has flat incisors and molars. They grind their food by moving their jaws in a side-to-side manner. Carnivores have sharp incisors and molars, and they move their jaws in a up-and –down motion to chew.***
6. How is a cow's digestive system different from our own? ***A cow has a much longer digestive system than we do. It has a rumen that incubates bacteria and other micro- organisms that digest cellulose. It also has several different stomachs. All of these differences are due to the cow's diet; grass and hay is VERY hard to digest!***
7. How does the digestive system of a herbivore differ from that of a carnivore? ***Herbivores have much longer digestive systems, and usually have some type of separate chamber with microorganisms for digesting cellulose.***
8. How are the cecum of a rabbit and the appendix of a human related? ***It is believed that our appendix was something very similar to the cecum of a rabbit. Now it is not in use, and can sometimes get dangerously infected (appendicitis).***
9. What are baleen? ***Baleen are teeth that have been modified so much, they look more like string. They are used by the giant blue whale, right whales and baleen whales to sieve the plankton from the water during filter feeding. .***
10. How does a vampire bat eat? ***The vampire bat use their incisors to pierce the skin and then suck the blood. They have an anticoagulant (stops the blood from clotting, so it will continue to flow out the wound) in their saliva just like mosquitoes do.***
11. Describe the process of inhaling and exhaling with respect to thoracic cavity volume and internal air pressure. ***When you inhale, the intercostals muscles (the rib muscles) and the diaphragm contract. This causes the diaphragm to move down, and the rib cage to move up and out. The result is a larger volume inside the thoracic cavity. The larger volume creates a lower air pressure inside the***

lungs (compared with outside the body) so air rushes in to equalize the pressure. When we exhale, the process is reversed. The intercostals muscle and the diaphragm relax, causing the rib cage to go back in and down. The diaphragm moves back up under the lungs. This decreases the volume of the thoracic cavity, and therefore increases the air pressure inside the lungs. Air moves out of the lungs, and the process begins again.

12. How do mammals excrete their nitrogenous wastes? What form is it in? ***Mammals use kidneys to filter the UREA from the blood and excrete it in urine.***
13. What else do the kidneys do for mammals? ***Kidneys regulate the composition of the blood. It also will get rid of excess water (if necessary) and excess salt, and some drugs. It holds onto sugars and salts that you need balance the bloods tonicity.***
14. What is the largest part of the brain in a mammal? Why? ***The largest part of the brain in a mammal is the cerebrum. It is very well developed and is responsible for the very complicated behaviours that mammals exhibit.***
15. Describe the vision of mammals. How are apes monkeys and humans different than most mammals? ***Most mammals have good vision in black and white, but usually not great colour vision. The exceptions are the apes, monkeys and humans. It is thought that most mammals do not have colour vision because we evolved from ancestors that were nocturnal.***
16. What does "gestation" mean? ***The length of time that placental mammals develop their embryos inside the womb.***
17. What type of mammal has the longest gestation times? The shortest? ***Elephants have the longest gestation period. Usually animals that are at the top of the food chain have longer gestation periods, and those at the bottom (like mice and rats) have very short gestation periods.***
18. What 3 characteristics do scientists use to classify mammals? ***Scientists use the structure of the teeth, the number/kind of bones in the head, and the type of reproduction to classify mammals.***
19. What does the placenta do? ***The placenta is part of the mother's tissue and part of the baby's tissue. It gives oxygen and nutrients to the baby and takes away the carbon dioxide and wastes.***
20. What marsupials live in North America? ***The only marsupials in North America are opossums.***
21. How do bats find their prey? ***Bats use ecolocation to locate their prey. It works very well, even in the dark.***
22. What do rodents have that is unusual about their teeth? ***They have two long front teeth that continue to grow all their lives. They wear them down as they chew on their food.***
23. How are seals and walruses different from whales and dolphins in terms of lifestyle and reproduction? ***Seals and walruses are mammals that have gone back to the water, but they still must return to the land to breed and to have their offspring. Whales and dolphins have made the return to water complete; they don't have to return (and can't) to land for anything.***
24. What is the advantage of developing your embryos inside your body? (placental animals). ***If the female can carry the embryos around, protected inside the body,***

the embryo has a much better chance of surviving. Other animals have to either leave the developing embryos on their own while they go and get food, or the other mate has to collect food for the both of them. The embryos can spend more time developing this way.

25. What is the difference between New World Monkeys and Old World Monkeys? Give examples of both. ***New World Monkeys (squirrel monkeys and spider monkeys) have long prehensile tails that they use as an extra appendage for climbing and swinging. Old world monkeys (chimpanzees, gorillas and our ancestors) don't have tails.***
26. Label the diagram of the mammalian respiratory system. Be sure to know the function of each of the parts.

1. pharynx
2. epiglottis
3. esophagus
4. larynx
5. trachea
6. bronchi
7. bronchioles
8. pleural membranes
9. alveoli
10. diaphragm

27. Label the diagram of the mammalian brain. Know the functions of the parts.

1. optic lobe
2. cerebrum
3.
4. cerebellum
5. medulla
6. spinal cord

28. Label the diagram of the mammalian heart. Know the path of blood through the heart.

1. r. ventricle
2. tendons
3. inferior vena cava
4. A.V valve
5. semilunar valves
6. r. atrium
7. r. pulmonary veins
8. r. pulmonary arteries
9. superior vena cava
10. aorta
11. l. pulmonary arteries
12. l. atrium
13. l. pulmonary veins
14. semilunar valves
15. AV valve
16. tendons
17. l. ventricle
18. septum

29. Label the diagram of the internal structures of the rat. Know the function of the parts.

a. salivary glands
b. esophagus
c. liver
d. gall bladder
e. stomach
f. kidneys
g. small intestines
h. bladder (urinary)
i. Rectum
j. appendix
k. caecum