

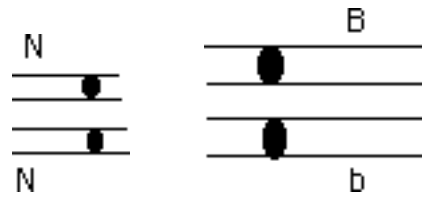
Biology 215  
Practice Test 3  
Fall '99  
Snitovsky

Multiple Choice. Choose the one correct answer for each of the following questions. Mark the correct answer on your Scantron answer form.

1. Which of the following cell types is responsible for initiating antibody production of the primary immune response?
  - a. memory cells
  - b. macrophages
  - c. stem cells
  - d. B cells
  - e. T cells
  
2. Which of the following are effector mechanisms of humoral immunity?
  - I. Activation of complement
  - II. Neutralization
  - III. Precipitation
  - a. I only
  - b. II only
  - c. I and II only
  - d. II and III only
  - e. I, II, and III
  
3. Which of the following transfusions is compatible?

	Donor	Recipient
a)	A+	B-
b)	A-	AB+
c)	O+	O-
d)	AB-	O+
  
4. T cells can only recognize an antigen if
  - a. it is free in the body fluid.
  - b. it is displayed by a B cell.
  - c. it is displayed along with an MHC antigen.
  - d. T cells do not bind to antigens at all.
  
5. Which cells directly destroy body cells that are infected by viruses?
  - a. helper T cells
  - b. cytotoxic T cells
  - c. memory cells
  - d. B cells
  
6. Passive immunity can be obtained by
  - a. having the disease
  - b. receiving a vaccination against the disease.
  - c. receiving antibodies by injection.
  - d. being injected with a small dose of the antigen.
  
7. Of the following, AIDS is usually transferred by
  - a. casual contact.
  - b. food.
  - c. water.
  - d. sexual intercourse.
  - e. insect bites.

Use the following diagram to answer questions 8-11



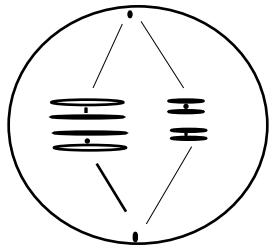
8. The genotype of this individual is
  - a. Nb
  - b. NNBB
  - c. NnBB
  - d. NNBb
  
9. A daughter cell after this cell undergoes both divisions of meiosis could have the genotype
  - a. Nb
  - b. NNBB
  - c. nB
  - d. NbNB
  
10. A daughter cell after this cell undergoes mitosis could have the genotype
  - a. NB
  - b. NnBb
  - c. NNBb
  - d. Nn
  
11. Can the organism whose genes are shown above express the recessive phenotype for either of these traits?
  - a. yes
  - b. no
  - c. it is impossible to tell
  
12. An organism will show a recessive phenotype if its genotype is
  - a. A.
  - b. AA
  - c. aa
  - d. Aa
  - d. a
  
13. When does crossing over start in meiosis?
 

a. Prophase I	d. Prophase II
b. Anaphase I	e. Anaphase II
c. Metaphase II	

Match the following choices to questions 14- 18. Choices may be used once, more than once, or not at all.

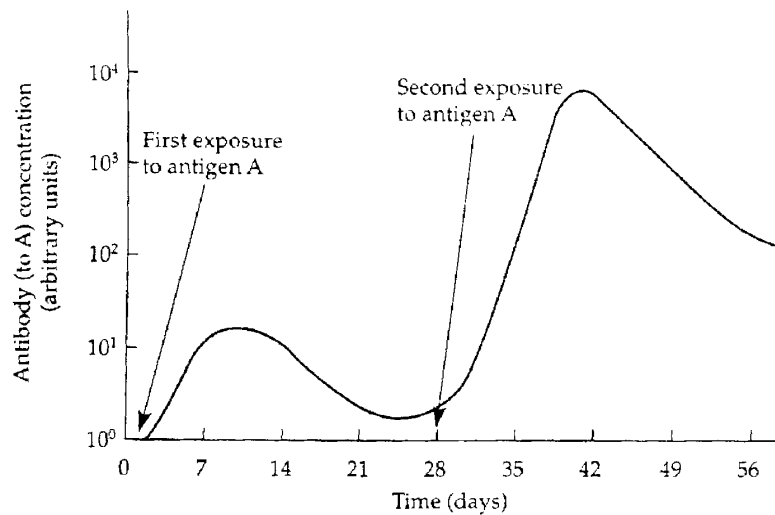
- a) Naturally acquired active immunity
- b) Naturally acquired passive immunity
- c) Artificially acquired active immunity
- d) Artificially acquired passive immunity

14. Type of protection Brian wants after being bitten by a rattlesnake for the first time.
15. Brian is having an unlucky week and gets bit by another rattlesnake a week later. What type of protection does he want this time?
16. Type of protection my dog has from her distemper vaccination.
17. Type of protection all of us have once we have had chicken pox.
18. Type of protection a baby gets from its mother's milk.
19. Interferon is a chemical produced by
  - a. helper T cells
  - b. plasma cells
  - c. B cells
  - d. macrophages
  - e. cells that are infected with a virus
20. An Rh+ molecule in the body of an Rh- person is considered to be a(n)
  - a. antigen
  - b. antibody
  - c. helper T cell
  - d. cytotoxic T cell
  - e. memory cell
21. A cell containing 24 chromosomes at the start of mitosis would, at its completion, produce cells containing how many chromosomes?
  - a. 12
  - b. 16
  - c. 24
  - d. 48
  - e. 96



22. From the drawing above, one can determine that the cell is in which phase of meiosis?
  - a. metaphase II
  - b. anaphase I
  - c. prophase I
  - d. interphase I
  - e. telophase II
23. Inflammation
  - a. causes a localized increase in temperature, increasing the rate of reactions.
  - b. results in the blood vessels near the infection site becoming leaky.
  - c. causes local swelling.
  - d. is part of the nonspecific defense system.
  - e. all of the above.
24. An antibody is a protein shaped like the letter
  - a. E.
  - b. K
  - c. Y.
  - d. W.

Use the graph below to answer questions 25-26



25. Time A on the graph indicates
- first exposure to an antigen
  - second exposure to an antigen
  - third exposure to an antigen
  - the person has a compromised immune system
26. Time B on the graph indicates
- first exposure to an antigen
  - second exposure to an antigen
  - third exposure to an antigen
  - the person has a compromised immune system
27. If an HIV-infected patient does produce antibodies against the virus, why are they ineffective?
- This type of virus can not bind to antibodies.
  - This virus mutates too rapidly for antibodies to be effective.
  - By the time antibodies are produced, the virus has already entered cells.
  - Antibodies are not produced against this virus.
28. If R represents a dominant allele, and r a recessive allele for the same trait, a homozygous recessive individual will have which of the following genotypes:
- RR
  - Rr
  - rR
  - rr
  - none of the above.
29. The products of meiosis in animals become
- diploid cells
  - gametes
  - multicellular organisms
  - nuclei
30. An organism with which of the following genotypes can produce gametes with either the dominant or recessive allele in equal amounts.
- tt
  - Tt
  - rr
  - TT

Genetics Problems. Show your work to receive partial credit. Use the back if necessary. (10 points each)

31. In humans, brown eyes are dominant over blue eyes. Suppose a blue-eyed man marries a brown-eyed woman whose father was blue-eyed. What proportion of their children would you predict will have blue eyes?

32. A black guinea pig crossed with an albino one gave 12 black offspring. When the albino was crossed with a second black one, 7 blacks and 5 albinos were obtained. What is the best explanation for the type of inheritance illustrated? What are the genotypes of the parents, gametes and offspring? Show your work to receive partial credit.

33. In Cocker Spaniels, black color is due to a dominant gene B, and red color to its recessive allele b. Solid color is dependent on a dominant gene S, and white-spotting on its recessive allele s. A solid red male was mated to a black-and-white female. They have five puppies; one black, one red, one black-and-white, and two red-and white. What were the genotypes of the parents?

34. In peas tall (T) is dominant over its allele for short (t), and smooth (S) is dominant over its allele for wrinkled (s) peas. What would be the expected offspring if you crossed a homozygous tall, wrinkled seed plant with a short, homozygous smooth-seeded plant?