**AP BIOLOGY REVIEW – DAY 5**

**ANIMALS (ANATOMY/PHYSIOLOGY), CELL SIGNALING**

1. What are the three primary germ layers and what organ systems do each form in animal development?
	1. .................................................................................................................
	2. .................................................................................................................
	3. ................................................................................................................
2. What are the two main types of immune system defenses in animals?...................................................................................
3. List and define 5 non-specific immune responses?
	1. ........................................................................................................................................
	2. ........................................................................................................................................
	3. ........................................................................................................................................
	4. ........................................................................................................................................
	5. ........................................................................................................................................
4. What is the difference between cell mediated immunity and humoral immunity?
	1. ....................................................................................................................................................................................
5. Differentiate between the primary and secondary immune response.
	1. ......................................................................................................................................................................................
	2. .......................................................................................................................................................................................
6. Which types of cells contribute to humoral immunity? Give the function for each type of cell.
	1. .............................................................................................................................................................................................
7. Which types of cells contribute to cell mediated immunity? Give the function of each type of cell.
	1. .............................................................................................................................................................................................
8. What is the difference between an endotherm and an ectotherm?
	1. ............................................................
	2. ...........................................................
9. Describe the peripheral vs. central nervous system
	1. .............................................................
	2. ..............................................................
10. Contrast the sympathetic and parasympathetic nervous system.
	1. ............................................................
	2. ............................................................
11. Describe the parts of a neuron.
	1. dendrites..........................................................................
	2. axon..................................................................................
	3. nodes of Ranvier...............................................................
	4. terminal branches.............................................................
	5. synaptic clefts.................................................................
12. Describe the release of neurotransmitters at a synapse................................................................................
13. Where is insulin produced and what is its function? .........................................................................................................................
14. Where is glucagon produced and what is its function? .....................................................................................................................
15. Give an example of long distance cell signaling…………………………………………………………………………………………………………………………….
16. What is the mechanism of steroid hormone function?......................................................................................................................
17. What is the mechanism of peptide hormone function?.....................................................................................................................
18. How second messengers work? ......................................................................................................................................................
	1. Give two examples of second messengers.................................................... ...............................................................
19. Define the following:
20. cleavage .................................................................................................................................
21. blastula .................................................................................................................................
22. gastrula ................................................................................................................................
23. What is the difference between the autonomic nervous system and the somatic nervous system?
24. Give the functions and locations of the following parts of the brain:
	1. brain stem .................................................................................................................................
	2. cerebellum.................................................................................................................................
	3. parietal lobe .................................................................................................................................
	4. frontal lobe.................................................................................................................................
	5. temporal lobe .................................................................................................................................
	6. occipital lobe.................................................................................................................................
25. Differentiate between learned and innate behavior.
	* 1. ...................................................................................................................................................
		2. ...................................................................................................................................................
26. Describe the following:
	* 1. Taxis .........................................................................................................................................
		2. Kinesis .....................................................................................................................................
		3. Imprinting .................................................................................................................................
		4. Conditioning (operant and classical)....................................................................................................................................................
		5. Habituation .................................................................................................................................
		6. Insight ......................................................................................................................................
27. **Draw and Label:**  a reflex arc
28. **Draw and Label:** a neuromuscular junction
29. **Draw and label:** activation of a B lymphocyte
30. **Draw and Label:**  a steroid hormone communication with target cell
31. **Draw and Label:** a protein hormone communication with a target cell
32. The rate of metabolism of a certain animal at 10ºC, is 27 µlO2 g-1h-1.

What are its rates of metabolism at 20, 30, and 40 ºC if the Q10 is 2? If it is 2.5?

**((*T*2**−***T*1)/10))**

*R*2 =*R*1 x *Q*10

|  |  |
| --- | --- |
| **Temperature** ºC | **Rate2 if Q10 = 2**  |
| 20  |   |
| 30  |   |
| 40  |   |

|  |  |
| --- | --- |
| **Temperature** ºC | **Rate2 if Q10 = 2.5**  |
| 20  |   |
| 30  |   |
| 40  |   |

1. The following table reports the rates of metabolism of a species at a series of ambient temperatures:

|  |  |
| --- | --- |
| Temperature (ºC)  | Rate of Metabolism (µlO2 g-1h-1.)  |
| 15  | 10  |
| 20  | 13.42  |
| 30  | 21.22  |

1. Calculate the Q10 values for each temperature interval.

**(10/(*T*2**−***T*1))**

*Q*10 ={*R*2/*R*1}

1. Within which temperature interval (15-20 or 20-30) is the rate of metabolism most sensitive to temperature change?

1. For this species, would a Q10 calculated for 15 to 30 ºC be as useful as several for smaller temperature ranges? Calculate that Q10 as part of your answer.

3. The reaction rate for a certain process at **14** ºC **is 15 units / time.**

(a) What would be the reaction rate at 20 ºC if the Q10 = 1?