AP Biology – Worksheet #2

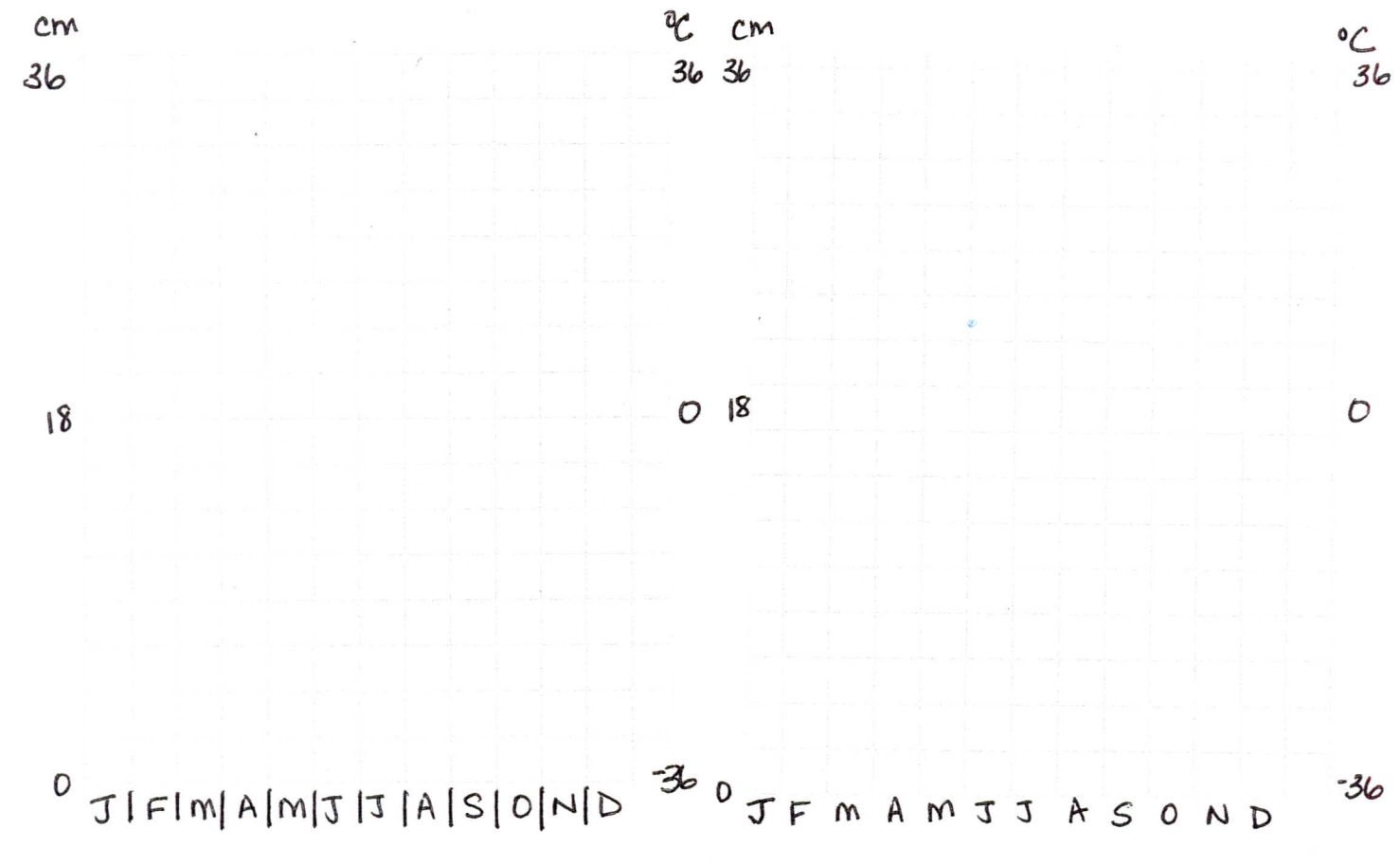
Design your own answer sheet on a piece of graph paper.

I. The climatic data for two different biomes is listed below. Construct a climatogram for each on the graphs provided. Plot temperature as a line graph and plot precipitation as a bar graph. Both the bar and line graphs will be on the same graph.

A.	T:	-0.6	2.2	5.0	10.0	16.3	18.3	23.3	22.2	16.1	10.6	4.4	0.0
	P:	1.5	1.3	1.3	1.0	1.5	0.8	0.3	0.5	0.5	1.0	0.8	1.5

B.	T:	25.6	25.6	24.4	25.0	24.4	23.3	23.3	24.4	24.4	25.0	25.6	25.6
	P:	25.8	24.9	31.0	16.5	25.4	18.8	16.8	11.7	22.1	18.3	21.3	29.2

A. _____ B. _____



II. A group of scientist studied a population of field mice for a one year period. Each month the number of individuals in the population was determined. The data is reported below. Plot the data as a line graph. Explain what the data tells you about this field mouse population. (use such as terms biotic potential carrying capacity, limiting factors – underline the words as you use them)

May 1970	June	July	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April
100	130	230	300	650	320	250	230	600	550	500	570

III. A population of Drosophila (fruit flies) was grown in vials in the laboratory. Counts of the number of individuals in the population were made and the following results were obtained.

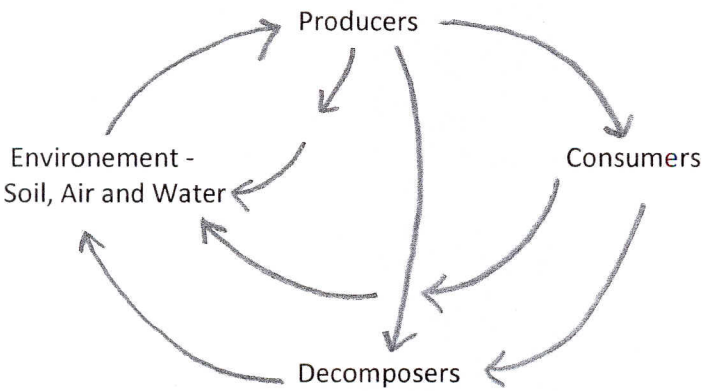
Time in Days	Number of Flies	Time in Days	Number of Flies
2	2	28	192
4	2	30	201
6	4	32	205
8	10	34	210
10	18	36	211
12	24	38	211
14	41	40	210
16	60	42	205
18	86	44	204
20	115	46	200
22	140	48	198
24	161	50	196
26	181		

III. Continued:

A. Plot the growth curve of the Drosophila population (use such terms as biotic potential, carrying capacity, limiting factors,- underline the words as you use them)

B. How does the graph of a natural population (mice) differ from the graph of the laboratory population – explain.

IV.



A. Discuss the kinds of nutrients that could be recycled in the manner illustrated above.

B. Why are such Biochemical Cycles important in nature?

C. What would be the effect on nutrient cycles if the decomposers were removed?

VI. Food chain Concentration of DDT in a Long Island Marsh that was sprayed with Mosquito Control in 1967 (ppm)

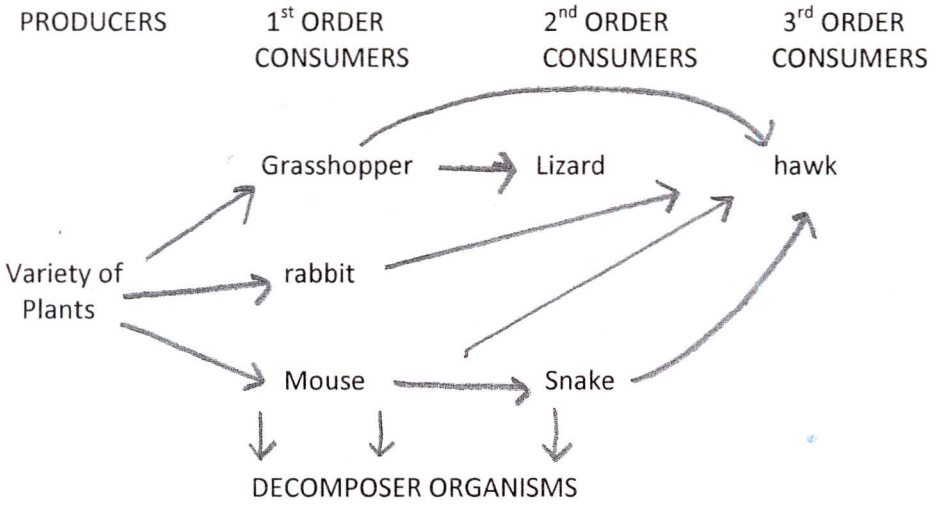
Water 00005
Plankton .04
Silverside Minnow .23
Sheephead Minnow .94
Pickerel 1.23
Needlefish 2.07
Heron 3.57
Tern 3.91
Osprey 13.8
Merganser 22.8
Cormorant 26.4

A. Based on what you know about nutrient cycles and food webs, explain the concentration of DDT in this food chain.

B. Explain what would happen if humans ate the pickerel (fish)

C. Which would be least harmful --- drink a glass of water from this river or eat a pickerel from it? Explain.

VII.



Use the above diagram to answer the following:

A. Explain what the above diagram is showing
B. What does the above diagram indicate about the feeding pattern of hawk? – use correct terms.
C. Why are decomposers said to be special kinds of consumers?
D. Are there probably more rabbits or hawks? Explain? Support your answer with information dealing with the energy flow/ energy pyramid, etc.
E. Why is the above diagram not called a food chain?

V. A company purchased some land and a study of the community structure and composition on this land was studied for over a 150 year period. The principal plants in the area were counted and the data that follows was obtained:

Plants present and their number:

Community 2-3 years of age

Wild onion 28
Indian hemp 8
Daisy 11
Wild lettuce 25
Goldenrod 23
Ragweed 50
Aster 39
Morning Glory 13
Sand brier 27
Red Clover 6

Community 50 years of age

Pine 50
Grape 6
Virginia creeper 20
Oak (small) 10
Rattlesnake fern 10
False Solomon seal 25

Community 100 years of age

Pine 5
Maples 5
Poison Ivy 4
Oaks 25
Hickory 20
Honeysuckle 2

A. How would you describe the community structure at the three year old stage (dominant plants, etc.)

B. How would you describe the community structure at the fifty year old stage (how has it changed – dominant plants, etc.)

C. How would you describe the community structure at the one hundred year old stage? (how has it changed, dominant plants, etc.)

D. Name and explain the process that communities go through over time (the data supports that this has happened).

E. What is the final state of this process called? How could you determine if the 100 year old community had reached this stage?