CVG3120, FALL 2016 ASSIGNMENT 3

Due date: Monday, November 164 2016, 23:59

Problem 1

Meyer (1915) presented the mass transfer equation

$$E = b_0(1 + 0.1V_{30})(e_s - e)$$

In which V_{30} is the wind speed in mi/hr at 30 feet above the water surface, e_s the saturation vapour pressure and e the observed vapour pressure. Using the following data set, find the best value of b_0. Assess the accuracy of the fitted equation.

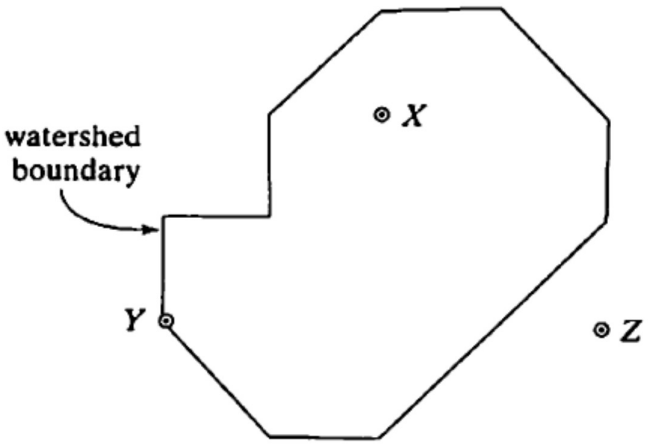
Temp.	*Relative humidity*	V_{30}	E
(°F)	(%)	(mph)	(in./day)
63	74	7.5	0.08
71	66	9.2	0.14
76	63	8.4	0.18
68	68	6.3	0.13
62	76	6.8	0.09
54	77	9.1	0.06

Problem 2

If the measured atmospheric pressure is 1013 Mb, and the temperature of the wet bulb is 12 ° C, and the room temperature is of 20 ° C, to find absolute and relative humidity, the actual vapour pressure, the vapour pressure deficit and the dew point temperature.

Problem 3

For the following watershed, compute the average depth of storm rainfall using the Thiessen Method.



Gage	Catch (in.)
X	2.8
Y	3.6
Z	4.8

Problem 4

The long-term average annual rainfall (in.) and storm-event total (in.) for each of six gages are given in the following table.

Station	1	2	3	4	5	6
X	-	200	100	-75	70	-
Y	50	-75	100	25	30	80
Annual	29.1	34.4	30.9	30.2	32	25
Storm	1.3	2.7	1.8	1.9	?	?

1-Compute the rainfall at gages 5 and 6 where the catch using three different methods. Compare and comment the results.

2-A watershed in the area has a rectangular shape and the coordinates of its corners are (-60,-50), (-60, 50), (60, 50) and (60,-50). Estimate the average precipitation on that watershed using Thiessen polygons and the data from a) stations 1 to 4 and b) stations 1 to 6.