

HW #5

Please, write clearly and justify all your steps, to get proper credit for your work.

(1)[3 Pts] On average, 2.5 telephone calls per minute are received at the UH's switchboard. Assuming that the number of incoming calls per minute follows a Poisson distribution, compute the probability that that at any given minute there will be more than 2 calls.

(2)[6 Pts] The daily number of plant shutdowns follows a Poisson distribution with mean 2.0. Compute the probability that there are:

- (a) more than three shutdowns in a day;
- (b) at least one shutdown in a day.
- (c) Assuming that the company loses \$1,000 with each shutdown, compute the expected daily losses.

(3)[3 Pts] Suppose that in one year the number of industrial accidents X follows a Poisson distribution with mean 3.0. If each accident leads to an insurance claim of \$5,000, how much money would an insurance company need to keep in reserve to be 95 % certain that the claims are covered?

(4)[4 Pts] A delivery company found that the number of complaints was six per years on average. Assuming that the number of complaints follows a Poisson distribution, calculate the probability of having no complaints in

- (a) all of next year;
- (b) the next quarter.