Assignment 3

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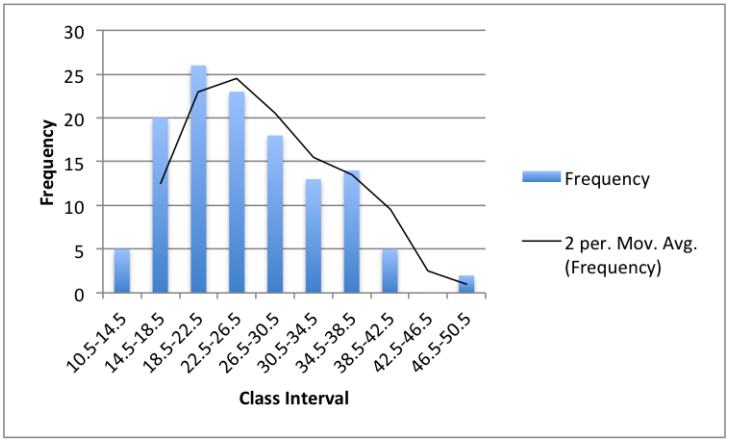
October 21, 2011

13.1 *Maintainability* is a characteristic, or result, of design that is expressed in terms of different measures of *maintenance,* activities performed pursuant to sustainment of proper system function. Maintainability (an attribute) drives maintenance (an activity).

13.4 MTBF is the average time between failures (unscheduled) whereas MTBM is the average time between all maintenance actions (both corrective and preventative). MTBR is the average time between item replacement as a result of either corrective or preventative maintenance. MTBR is a factor of MTBM.

13.5 (a) The range of observations is between 11 and 47.

(b) Using a class interval width of 4 yields 10 class intervals. The distribution looks *lognormal*.



(c) $\overline{\mathrm{M}}\mathrm{ct} = 27.7\overline{22}$.

(d) The geometric mean of the repair times is 25.67330796.

(e) The standard deviation of the sample data is 10.42511422.

(f) $\mathrm{M}_{\max} = 6.533504415$.

13.8 I had some problems here because it looks like "Mean logistics plus administrative" is *Given* however no value is supplied. It greatly helps if I assume the value to be 0 although I admit this to be a leap of faith. Please see the accompanying spreadsheet for calculations.

$$A_i = 0.803858521$$
$$A_a = 0.689655172$$
$$A_o = 0.689655172$$
$$\overline{\text{M}}\text{ct} = 61$$
$$M_{max} = n/a$$
$$MTBM = 111.\overline{11}$$
$$MTBF = 250$$
$$\overline{M} = 50$$
$$MTTR_g = n/a$$

13.11 Please see the accompanying spreadsheet for calculations.
$\overline{\text{M}}\text{ct}$ for System $ABCD = \frac{\sum C_t}{\sum C_f} = \frac{0.76}{0.76} = 1$.

Assembly	Quantity	λ	C_f	C_p	$\overline{\text{M}}\text{ct}$	C_t
A	1	0.05	0.05	0.065789474	1.3	0.065
B	2	0.16	0.32	0.421052632	1.0	0.32
C	1	0.27	0.27	0.355263158	0.9	0.243
D	1	0.12	0.12	0.157894737	1.1	0.132
			0.76	1		0.76

13.12 MLH/OH = 0.01 for the parameters given. Please see the accompanying spreadsheet for calculation.