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**TCET 4140 Telecommunication Network Management**

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**Project 3**

1. The cost of building a network is related to the total length of the transmission line. Assume hypothetically that the costs to build similar networks by the same K companies, are shown in the accompanying table.

Network Feet (ft) Cost ($)

1 14,500 800,000

2 15,000 825,000

3 17,000 875,000

4 18,500 972,000

5 20,400 1,074,000

6 21,000 1,250,000

7 25,000 1,307,000

8 26,750 1,534,000

9 28,000 1,475,500

10 30,000 1,525,000

**a.** Develop a CER for the construction of networks. Use the CER to estimate the cost of K’s next network, which has a planned a length of 2300m. (3.4)

**b.** Compute the standard error and correlation coefficient for the CER developed in Part (a). (3.4)

2. You are the manager of a large network. Lets assume that, as part of the network, certain servers fans must be replaced every year. The replacement and downtime cost in the first year is $1000. The cost is expected to increase due to the inflation rate of 8% per year for 5 years, at which time this particular fans will no longer be needed (servers are replaced with new ones). If the company’s cost of capital is 18% per year, how much could you afford to spend for higher quality fans so that these replacements and downtime costs would be eliminated?