CHAPTER V
CONCLUSION

In this study the cable-stayed bridge with the total length span of 642 meters were excited under different load cases including the pretension load, dead load, super imposed dead load and earthquake load. To predict the extent of probable damages of bridge structures, fragility curves are regarded to be a useful tool. The vulnerability assessment of bridges is useful for seismic retrofitting decisions, disaster response planning, estimation of direct monetary loss, and evaluation of loss of functionality of highway transportation systems. The fragility curves was developed by conducting the nonlinear time history analysis. To obtain the yield displacement of the structure, the pushover analysis is performed to the bridge. Thirty two acceleration time history are excited to the structure in longitudinal and transverse direction to obtain the response of the structure. The response of the structure that is maximum displacement of the bridge are developed to fragility curves. The following conclusions can be derived from the study result.

1. In target ground motion of Padang, the ductility of the structure is 4.0 with the peak ground acceleration of 0.61g. And the bridge performance are classified as “near collapse”.
2. From the pushover analysis, the yield displacement of the pylon is 0.24 meters in longitudinal direction and the yield displacement of the pylon is 0.20 meters in transverse direction.
3. In target ground motion of Padang, the bridge have the probability of exceedance for slight, moderate, extensive and complete are 96.91%, 94.09%, 84.60% and 26.20% respectively.
4. In evaluating the goodness of fit data of fragility curves using Kolmogorov-Smirnov test, the maximum error obtained is 0.166 with the satisfaction level is 95%, it means that the fragility curves can be used to evaluate the seismic hazard of this cable-stayed bridge.