B.Tech. CIVIL ENGINEERING (BTCLEVI)

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December, 2017

BICEE-018 : PAVEMENT EVALUATION

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Assume suitable data wherever necessary. Use of scientific calculator is allowed.*

1. What is PSI ? How is it related to distress index ? Discuss in detail.   *10*

2. Explain the different methods of pavement surface condition evaluation by physical measurements.   *10*

3. Describe the effect of moisture, temperature and environment on the structural stability of pavements.   *10*

4. Explain how the results of FWD are used for pavement evaluation. Explain the advantage of FWD method. *10*

5. In a Benkelman Beam Deflection test conducted on 15 spots, rebound deflection values (in mm) are given below :

1·42, 1·35, 1·20, 1·37, 1·49, 1·60, 1·62, 1·55, 1·33, 1·40, 1·28, 1·75, 1·68, 1·52, 1·58

Determine the values of the following : *10*

(a) Mean deflection

(b) Standard deviation

(c) Characteristic deflection for heavy traffic

6. Write short notes on the following : *10*

(a) Use of Geosynthetics in Pavement Overlays

(b) Plate Load Test

7. Explain the relationships and activities of the key components in pavement management process. *10*

8. Discuss with the help of a flow chart, how pavement management system can be used for rigid pavement design. *10*

9. What is roughness ? Explain the principle used in CHLOE profilometer for measuring pavement profile roughness. *10*

10. Enumerate the types and causes of failure in a concrete pavement and suggest remedial measures for repairing them. *10*