No. of Printed Pages : 2

BICEE-013

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00546

June, 2016

BICEE-013 : ELEMENTS OF SOIL DYNAMICS AND MACHINE FOUNDATION

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any **five** questions. All questions carry equal marks. Assume missing data, if any. Scientific calculator is allowed.*

1. Discuss the dynamic analysis of foundation for a reciprocating machine by the two approaches.

(a) Linear spring-mass system *7*

(b) Elastic half space theory *7*

2. Discuss the general requirement of machine foundation. What are allowable soil pressure and permissible stress of concrete and steel for design of machine foundation ? *14*

3. Describe the degree of freedom of a block foundation supporting reciprocating machine. Discuss the various modes of vibration of machine foundation. *14*

4. Explain the seismic stability of slopes in the following slopes : *14*

   (a) Natural and Man-made slope

   (b) Infinite and Finite slope

5. Explain the reliability of slopes during the earthquake in case of earthen dam. *14*

6. Describe the mass-spring-dashpot model and calculate the response magnification by using any suitable example. *14*

7. What is elastic theory of velocity of wave ? How is it determined in a laboratory ? *14*

8. Explain the following :

   (a) Effect of Rayleigh's surface wave in engineering structure. *7*

   (b) Compaction of soil under dynamic loads. *7*
