GOVT. COLLEGE OF ENGINEERING, AMRAVATI.
DEPARTMENT OF CIVIL ENGINEERING
B. Tech. Civil Engineering Class Test – II Course Code: CEU-402
Transportation Engineering
Date: 16/03/2017 Max. Marks: 15 Time: 01 Hr.

Q.1 The CBR value of subgrade soil is 7 %. Calculate the total thickness of flexible pavement using design formula developed by U.S. Corps of Engineers. Assume light traffic or 3175 kg wheel load and tyre pressure of 5kg/cm². Also discuss the advantages and limitations of CBR method. (03)

Q.2 What are the various steps involved in a bituminous mix design. Discuss briefly. Also state the Marshall mix design criteria for bituminous concrete. (03)

Q. 3 List the various tests on bitumen. Explain in detail the test procedure for determining grade of bitumen. (03)

Q. 4 Explain in brief any **two** of the following along with neat sketches (04)

i) Equivalent single wheel load
ii) Bituminous emulsions
iii) Bituminous macadam
iv) Specification of materials for WBM roads

Q. 5 Distinguish between Flexible pavement and Rigid pavement. (02)

CIVIL ENGINEERING DEPARTMENT
CLASS TEST II
SECOND YEAR CIVIL ENGINEERING
SUBJECT – TRANSPORTATION ENGINEERING

Time – 1 Hour Max. Marks: 15

1. List the various tests that are conducted on road aggregates and state the purpose of each. Explain briefly the Impact value test. State the recommended values of Impact values. (4)
2. What is meant by grade of bitumen? How is it determined? Explain. (3)
3. Define the following terms. (2)
   a) Elongation index
   b) Interface treatment
4. Explain in brief the construction procedure for penetration macadam type of bituminous road construction. (3)
5. Explain in brief the requirements of bituminous paving mixes. Also state the Marshall mix design criteria for bituminous concrete. (3)

   OR

   Explain in brief the limitations of the CBR method. Also calculate the total thickness of pavement using the design formula developed by US Crops of Engineers if the subgrade soil having CBR value 5 % is subjected to a wheel load of 4100 kg and a tire pressure of 6 kg/cm² (3)