Registration no: | | | | | | | | | | |

Total Number of Pages: 02

B.TECH
PCCI4302

5th Semester Regular / Back Examination 2015-16
TRANSPORTATION ENGINEERING - I
BRANCH: CIVIL
Time: 3 Hours
Max marks: 70
Q.CODE: T251

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: (2 x 10)

a) What were the important features of Macadam construction?

b) Explain PIEV theory?

c) State the different shapes of camber and which shape is normally provided to suit mixed traffic?

d) What is grade compensation? What is the maximum value of gradecompensation?

e) Bring out the main points of difference between cutbacks and emulsion.

f) What do you mean by Modulus of subgrade reaction and what is its use?

g) Draw the fundamental diagram of traffic flow and explain it.

h) Explain top down and bottom up cracking in rigid pavement.

i) What ix afflux?

j) What do you mean by length of a bridge?

Q2 a) State and explain the requirements of an ideal alignment along with the factorscontrolling highway alignment. (5)

b) State the different surveys conducted for highway location highlighting the details ofpreliminary survey. (5)

Q3 a) What are the varioustests conducted on bitumen to judge its suitability for road construction. Describepenetration test. (5)

b) What is traffic management? Describe the major traffic management techniques. (5)

Q4 A two lane NH passing through rolling terrain has a horizontal curve ofradius equal toruling minimum radius. Design the geometrical features of the curve. Also calculate theSSD, assuming the road on a level stretch. The brake efficiency may be taken as 80percent. Assume suitable data as Per IRC. (10)

Q5 a) What are the typical flexible pavement failures? Explain with neat sketches. (5)

b) Discuss the factors considered in the design of rigid pavement. (5)

Q6 a) Describe the procedure for design of flexible pavement as per IRC:37:2012 (5)

b) List out the various data to be collected for design of a bridge. (5)

Q7 a) Explain the details of a balanced cantilever bridge with a neat sketch. State itsadvantages. (5)

b) Sketch a typical well foundation of a bridge indicating its various components. What arethe problems associated with well sinking and state the remedial measures? (5)

Q8 Write short notes on any two: (5 x 2)

a) Sub-surface drainage

b) Causes and prevention of road accidents

c) General requirements of bituminous construction

d) Properties of road aggregates