PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M. Tech. Summer 2018 - 19 Examination

Semester: 2   Date: 08/05 /2019
Subject Code: 203211153   Time: 10:30 AM TO 1:00 PM
Subject Name: Pavement Design & Evaluation   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 A) What are the characteristics of a pavement? **(05)**

B) A two-lane two-way road is at present carrying a traffic of 1000 CVPD. It is to be strengthened for growing traffic needs. The vehicle damage factor (VDF) has been found as 3.0. the rate of growth of traffic is 10 per cent per annum. The period of construction is 5 years. The pavement is to be designed for 15 years after completion. Calculate the cumulative standard axle to be used in design. **(05)**

C) Discuss about ESWL in details. **(05)**

Q.2 **Answer the following questions**. (Attempt any three) (Each five mark) **(15)**
A) Explain the Indian Road Congress design method of rigid pavement.
B) Explain with sketch laboratory procedure of CBR test.
C) What are the properties of Marshall mix? Explain in detail with formulae.
D) Discuss the importance and methods of surface and sub surface drainage in pavement construction?

Q.3 A) Benkelman beam deflection studies were carried out on 10 selected points on a stretch of flexible pavement during summer season using a dual wheel load of 4085 kg, 5.6 kg/cm2 pressure. The deflection values obtained in mm after making the necessary leg corrections are given below. If the present traffic consists of 1000 CV per day, determine the thickness of bituminous overlay required, if the pavement temperature during the test was 300 C and correction factor for subsequent increase in sub grade moisture content is 1.3. Assume traffic growth rate increase as 8 % and duration between last count and construction of overlay as 2 year. Assume allowable deflection = 1.0mm and equivalency factor = 2 for the bituminous concrete overlay. **(07)**
1.45, 1.40, 1.38, 1.50, 1.65, 1.55, 1.46, 1.56, 1.42, and 1.35 mm.

B) Enlist various types of failures in flexible pavement with sketch. **(08)**

OR

B) Explain the types of joints in CC pavements. **(08)**

Q.4 A) Explain the Joint filler and Joint sealers in details **(07)**

OR

A) Explain the criteria and steps for design of dowel bars. **(07)**

B) Explain the procedure of Benkelman Beam test. **(08)**