Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

M.Tech. Winter 2019 – 20 Examination

Semester: 1 **Date: 18/12/2019**
Subject Code: 203215132 **Time: 10:30 am to 01:00 pm**
Subject Name: PAD **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 difference between tar & bitumen? **(05)**

B) Write a short note on: **(05)**
(i) Emulsion (ii) Cut Back Bitumen (iii) Tar

C) Discuss Nagpur road plan in brief. **(05)**

Q.2 **Answer the following questions**. (Attempt any three) (Each five mark) **(15)**

A) Explain classification of road pattern.

B) What is alignment? Explain factor affecting on it.

C) Explain plate load Test in brief.

D) Explain various stresses acting on rigid pavement.

Q.3 A) Discuss the Marshall method of bituminous mix design in brief. **(07)**

B) Enlist various test of bitumen and Explain any four tests of bitumen in brief. **(08)**

OR

B) Enlist various test of aggregates and Explain any four tests of aggregates in brief. **(08)**

Q.4 A) Write a short note on: **(07)**
(i) Central Road Fund (ii) HRB (iii) Motor Vehicle Act

OR

A) Enlist various method of flexible pavement design. Explain any two methods in detail. **(07)**

B) (i) Design of rigid pavement making use of Westergaard's wheel load and warping stress equation at edge region of the slab. The design data given below: **(08)**

P= 7000kg, p= 7.5kg/cm^2, L_x = 4.2m, L_y = 3.75m, E= 3* 10^5 kg/cm^2, e= 1*10^{-5}, Flexural Strength of CC= 45 kg/cm^2, K = 30 kg/cm^2

(ii) Maximum Temperature differential at location for pavement thickness values of 22,24,26 & 30 cm are respectively 14.8, 15.6, 16.2 & 16.8 C.

(iii) Factor of safety at edge region is 1.1 to 1.2.