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

Semester: 2   Date: 11/12/2018
Subject Code: 03211152   Time: 2:00 pm to 4:30 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	**Answer the following questions.** (All are compulsory) (Each of 5 marks)	**(15)**
	1.Compare highway and runway with reference to design prospective.	
	2.Brifely explain: tyoe pressure, contact pressure, rigidity factor, ESWL, EWLF.	
	3.factors affecting design and performance of rigid pavement.	
Q.2	**Answer the following questions. (Attempt any three)**	**(15)**
	A)Explain with sketches Burmister's layered theory.	
	B)Explain the procedure of conducting benkelmen beam test.	
	C)Discuss failures in rigid pavement. Write the remedial measure for them.	
	D)Which special precautions will be required for road construction in (i) Desert, and (ii) hilly area?	
Q.3	**A)** Design a suitable bituminous pavement section for a two-lane road with a single carriageway. The traffic expected is 500 commercial vehicles per day in both direction with average vehicle damge factor of 2.0 design sub grade CBR is 5% and the assumed design life of the pavement is 10 years. Take lane distribution factor 0.75. use guidelines of IRC 37.	**(07)**
	B) Explain the CBR method of flexible pavement design.	**(08)**

<div align="center">OR</div>

	B) Explain with sketch laboratory procedure of Marshall stability test for bituminous mix design.	**(08)**
Q.4	**A)** Calculate the stress at interior, edge and corner region of cement concrete pavement using Westergaard's stress equations. Take wheel load = 5200 kg, E_c=3×10^5 kg/cm^2 , Pavement thickness=20cm, μ=0.15, Modulus of subgrade reaction K=7 kg/cm^3, Radius of contact area=15cm.	**(07)**

<div align="center">OR</div>

	A) Describe with sketches failures in flexible pavements. Write the remedial measures for them.	**(07)**
	B) What is 'Pavement Serviceability Index & structural number'? Discuss the method of designing pavement based on this concept.	**(08)**