

ANURAG Engineering College

(An Autonomous Institution)

IV B. Tech I Semester Regular/Supplementary Examinations, Dec-2024

**PAVEMENT DESIGN
(CIVIL ENGINEERING)**

Time: 3 Hours

Max. Marks: 75

Section – A (Short Answer type questions)

(25 Marks)

Answer All Questions

	Course Outcome	B.T Level	Marks
1. What are functions of each layer in flexible pavement?	CO1	L1	2M
2. Differentiate between tire and contact pressure.	CO1	L2	3M
3. What are properties of viscoelastic material?	CO2	L1	2M
4. List Burmister theory assumptions.	CO2	L1	3M
5. Mention the critical condition of stresses for a combination for in rigid pavement during winter.	CO3	L2	2M
6. Summarize the effect of temperature and moisture in rigid pavement.	CO3	L2	3M
7. Mention the limitation in empirical methods of flexible pavement design.	CO4	L2	2M
8. List any three benefits of Pavement Design Based on M–E Method.	CO4	L1	3M
9. What is the effect stress ratio beyond 0.45 in rigid pavement?	CO5	L2	2M
10. What is the preferred placement of construction joints in rigid pavements?	CO5	L2	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks.

(5 X 10M = 50M)

11. A) With a neat sketch explain the functions of different layers of a flexible and rigid pavement. CO1 L2 10M
- OR**
- B) Calculate design repetitions for 20 years period for various wheel loads equivalent 2268 kg wheel load using the following traffic survey data on a four-lane road. CO1 L3 10M

Wheel load kg	Average daily traffic (both directions)	Percentage of Total traffic volume
2268	Total volume (Considering Traffic growth) 215	13.17
2722		15.30
3175		11.76
3629		14.11
4082		6.21
4536		5.84

12. A) Determine the thickness required for a flexible pavement to sustain a wheel load of 22500 kg with a tyre pressure of 14 kg/cm² by Burmister's two layered system. A plate load test was conducted on subgrade soil and for 0.125cm deflection, the unit pressure on 75cm plate was found to be 0.8kg/cm². On a test section of base course 15 cm thick the pressure on the plate was found to be 2.1 kg/cm² for the deflection of 0.125 cm. CO2 L3 10M

OR

