ROILNO.						

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## M.Tech. (Civil Engg) (Sem.-2) ADVANCE BRIDGE DESIGN Subject Code : MTCE-210 M.Code : 74303 Date of Examination : 24-12-2022

## Time: 3 Hrs.

## Max. Marks: 100

## **INSTRUCTION TO CANDIDATES :**

- 1. Attempt any FIVE questions out of EIGHT questions.
- 2. Each question carries TWENTY marks.
- 1. Explain in detail about planning and economic considerations for a Bridge system. (20)
- 2. What is Bridge deck analysis? Explain with stiffness method theories, and Finite difference method. (20)
- 3. Design a solid slab bridge for the following data : (20)

Clear distance between abutments : 6m

Road : NH (Two Lane)

Foot path : 1.1m on either side

Width of bearing : 415 mm

Wearing coat : 85mm average

Loading : IRC 70R (wheeled)

Materials : M25 concrete and Fe 500 Steel.

- 4. a) Write down the step-by-step procedure for the design of wing walls. (12)
  - b) What is the purpose of abutments explain in detail. (8)

5.	Design a well foundation for the pier of a major highway bridge to suit the for data.	ollowing (20)
	Internal diameter of well-2.6m	
	Type of soil strata- $clay(k = 0.035)$	
	Depth of well- 25 m below the bed	
	Use M-25 grade of concrete and Fe-415 of steel.	
6.	a) What are the factors influencing bridge vibrations?	(10)
	b) Explain the dynamic response of bridge deck.	(10)
7.	a) What are the factors to be considered in the selection of a suitable bridge site?	(8)
	b) Discuss the code provisions for the design of bridge for earthquake forces.	(12)
8.	Draw a neat sketch of suspension and explain the components in detail.	(20)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.