

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (2011 Onwards E-I & II) (Sem.-7,8)

**BRIDGE ENGINEERING**

Subject Code : BTCE-820

M.Code : 71879

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**Q1. Write briefly :**

- a) Draw a neat sketch for a well foundation.
- b) What are 'elastomeric bearings'?
- c) Describe the usual type of bridge piers.
- d) Under what circumstances rigid frame bridge is provided?
- e) What is the minimum time span after which a bridge requires any kind of maintenance?
- f) Why wind loads are considered for the design of bridges?
- g) Differentiate between box culvert and pipe culverts.
- h) Why expansion joints are provided in bridges?
- i) Define the term 'fixed bearings'.
- j) What is the significance of studying bridge engineering?

## SECTION-B

- Q2. Would you prefer steel bridge or a RCC bridge for a canal on a state highway? Elaborate your answer.
- Q3. What essential data is required for the design of bridge?
- Q4. Why bearings and joints are provided in bridges? Discuss their significance.
- Q5. What are the various causes of bridge failures and how they can be avoided?
- Q6. Discuss the various types of stresses that arises in bridges.

## SECTION-C

- Q7. With the help of neat sketches differentiate between the shallow, pile and well foundations.
- Q8. Under what circumstances box girder bridge is provided? Also discuss the advantages and disadvantages of providing truss bridges.
- Q9. Briefly discuss the following terms :
- a) Carriageway width
  - b) Wheel load
  - c) Buoyancy effect
  - d) Approach slab

**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.**