SP-210

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Seat No.	

Fourth Year B.Tech. (Civil PE2) (Semester - VIII) (CBCS) Examination, November - 2023

DESIGN OF BRIDGES

Sub. Code : 84748

Day and Date : Thursday, 23 - 11 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 1.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data wherever necessary.**

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SECTION - I

Q1) Attempt any Two **[12]**

a) Explain in details components of Bridges. **[6]**

b) Write investigation of bridge structures. **[6]**

c) Explain in detail history of bridges and necessity of bridge. **[6]**

Q2) Attempt any two **[11]**

a) Write a note on IRC class AA loading (tracked vehicle) **[6]**

b) Enlist various forces acting on a bridge. Explain any one **[6]**

c) Write a note on I.R.C. Specifications. **[5]**

P.T.O.

Q3) Attempt any two **[12]**

a) Explain general design considerations for R.C.C. bridge and P.S.C. bridge. **[6]**

b) Explain in details Courban's Method for design of longitudinal girders of bridges. **[6]**

c) Illustrate the design steps of deck slab. **[6]**

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SECTION - II

Q4) Attempt any two **[11]**

a) Write a note on under-reamed pile foundation. **[6]**

b) Explain in detail Open Caissons. **[6]**

c) Write a short note on repair of existing bridge. **[5]**

Q5) Attempt any Two **[12]**

a) Explain procedure for design of bridge pier. **[6]**

b) Explain Counterfort abutement and stub abutment. **[6]**

c) Explain well foundation. **[6]**

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Q6) Attempt any ONE **[12]**

a) Design an elastomeric unreinforced neoprene pad to suit following data **[12]**

Vertical load (Sustained) = 200 KN

Vertical load (Dynamic) = 40KN

Horizontal force = 60 KN

Modulus of rigidity of elastomer = 1 N/mm^2

Take Dimensions a = 250mm, b = 500mm

tan $\varnothing$ = 0.48, f = 0.3.

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b) Explain all types of bearings in detail. **[12]**