

Total No. of Questions :6]

SEAT No. :

P53

OCT. -16/BE/Insem. - 104

[Total No. of Pages :2

B.E. (Civil)

STRUCTURAL DESIGN OF BRIDGES (401004)

(2012 Pattern) (Elective - I) (Semester - I)

Time : 1 Hour]

[Max. Marks :30

Instructions to the candidates:

- 1) *Answer Q-1 or Q-2, Q-3 or Q-4, Q-5 or Q-6.*
- 2) *Figures to the right indicates full marks.*
- 3) *Use of relevant IRC Codes is allowable.*
- 4) *Mere reproduction of codes will not given any marks.*
- 5) *Use of non programmable electronic calculator is allowed.*
- 6) *Assume suitable data if necessary.*

Q1) a) Classify the bridges according to material of Construction and forms of Super structure. **[7]**

b) Draw neat sketches of slab culvert, pipe culvert and box culvert. **[3]**

OR

Q2) Explain various loads to be considered in design of highway bridges. **[10]**

Q3) Explain in detail Pigeaud's Method for analysis of slabs. **[10]**

OR

Q4) Design the Cantilever slab of an RCC T-beam deck slab bridge for two lane highway for the following Data. **[10]**

- a) Span of bridge - 25 m
- b) Foot path on either side - 1.5 m wide
- c) Width of Carriage way - 7.5m

P.T.O.

- d) Spacing of longitudinal girder - 3.3m (03nos)
- e) Spacing of cross girders - 3 m
- f) Thickness of wearing coat - 80 mm
- g) Loading IRC Class AA Tracked vehicle
- h) Material - M30 Fe - 500
- i) Use --- $m_1 = 0.055$ $m_2 = 0.021$
- j) Sketch details of reinforcement

Q5) Using the data of Q (4) above calculate the design bending moment and shear force for the design of intermediate post tensioned girder. **[10]**

OR

Q6) Explain in detail Curbon's Theory with suitable sketches. **[10]**

