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SEAT No. :

P5435

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BE/Insem./Oct.-4
B.E. (Civil)
STRUCTURAL DESIGN OF BRIDGES
(2012 Pattern) (Semester - I) (Elective - I)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates :

1) ***Answer Q.1 or Q.2; Q.3 or Q.4 and Q.5 or Q.6.***
2) ***Figures in bold to the right, indicate full marks.***
3) ***Latest revisions of IS: 456, IRC: 6, IRC: 112 and IS: 1343 are allowed in the examination.***
4) ***If necessary, assume suitable data and indicate clearly.***
5) ***Use of electronic pocket calculator is allowed.***

Q1) Classify the bridges according to material of construction with suitable sketches. **[10]**

OR

Q2) Explain IRC loadings for highway bridges. **[10]**

Q3) What is impact loading? How is it calculated? Explain with an example. **[10]**

OR

Q4) Explain Pigeaud's Method with suitable sketch. **[10]**

Q5) An R.C. T-Beam deck slab bridge for two lane National Highway has the following details. **[10]**

a) Thickness of railings - 100 mm

b) Thickness of footpath - 200 mm

c) Thickness of wearing coat - 80 mm

d) Span of main girder - 14.0 m

e) No. of main girders - 3.5m

P.T.O.

f) Spacing of cross-beams - 3 m c/c

g) Live load - IRC Class A

h) Materials - M30 grade of concrete and Fe 500 grade of steel

Adopt $m_1 = 0.06$ and $m_2 = 0.04$

Design the cantilever slab and sketch the details of reinforcement

OR

Q6) For the R.C. T-Beam deck slab bridge given in Q.4, design the interior panel and sketch the details of reinforcement. **[10]**