B.Tech Sem – V (2007 Course) (Civil Engg.) : WINTER - 2018
SUBJECT: STRUCTURAL MECHANICS – II

Day: Saturday
Date: 01/12/2018

Time: 02.30 PM TO 05.30 PM
Max Marks: 80

W-2018-2796

N.B. :

1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** questions from each section.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Draw neat and labeled diagrams **WHEREVER** necessary.
4) Figures to the right indicate **FULL** marks.
5) Assume suitable data if necessary.

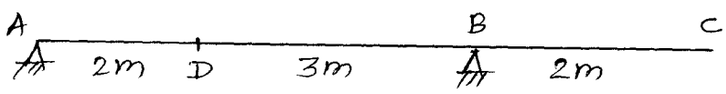
SECTION – I

Q.1 **a)** What is an I.L.D.? **[04]**

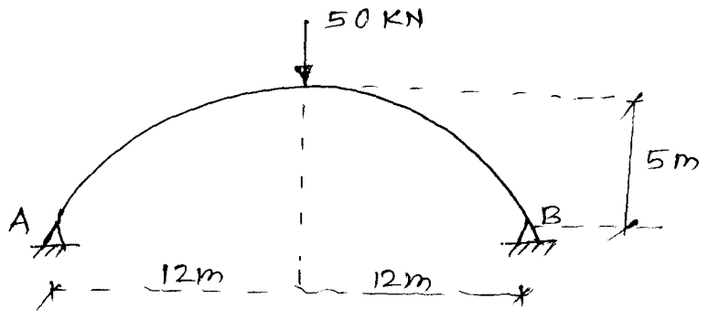
b) What is horizontal thrust? **[04]**

c) What is concept of flexibility matrix method of analysis? **[04]**

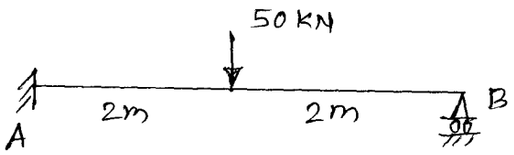
Q.2 Draw an ILD for reactions, SF at 'D', BM at 'D' for beam shown in figure. **[14]**



Q.3 For two hinged arch, calculate horizontal thrust. **[14]**



Q.4 Analyse the beam using flexibility matrix method. **[14]**



P.T.O.

SECTION – II

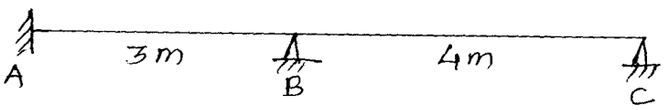
Q.5 **a)** What is Shape factor? **[04]**

b) What is Stiffness matrix? **[04]**

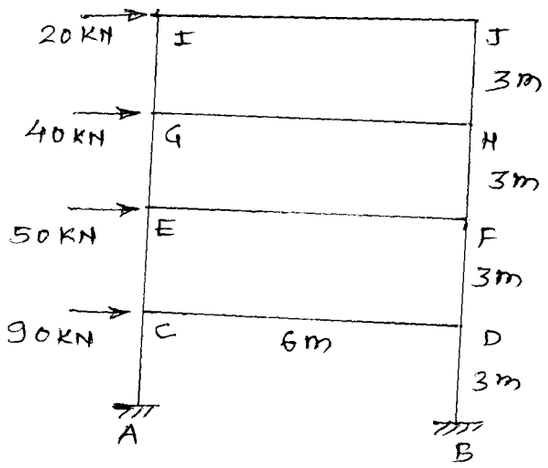
c) What are assumptions in portal method of analysis? **[04]**

Q.6 Derive an equation for shape factor for rectangular cross section. **[14]**

Q.7 Derive stiffness matrix for the beam shown in figure. **[14]**



Q.8 Analyse the frame using cantilever method. **[14]**



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