Dr A K Gupta

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MID TERM TEST

SUMMER SEMESTER - JUNE 2018

B.Tech 4th Semester

COURSE CODE: 10B11CE413 MAX. MARKS: 50

COURSE NAME: STRUCTURAL ANALYSIS

COURSE CREDITS: 04 MAX. TIME: 2 Hrs

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

Q1. Analyse the continuous beam as shown in the Fig. 1 using slope defection method. **(13)**

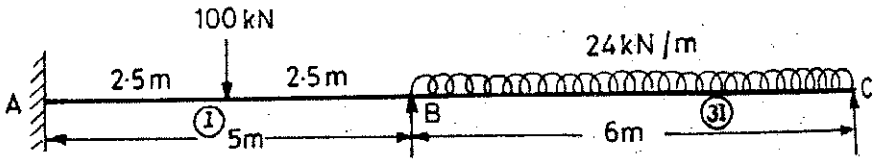

Fig. 1

Q2. A continuous beam ABC fixed at the ends is loaded as shown in Fig. 2. Find the reactions and support moments using Clapeyron's theorem of three moments. **(13)**

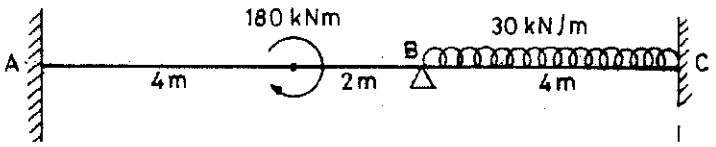

Fig. 2

Q3. Determine the Ds for the plane truss a shown in the Fig 3 **(5)**

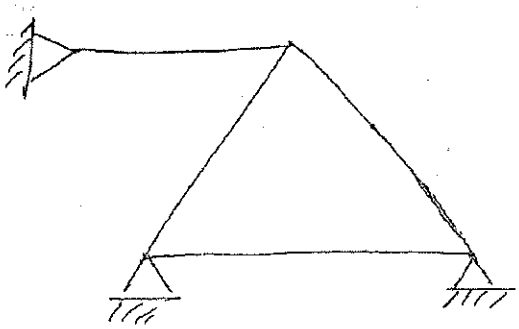

Fig 3

Q4. For 2D rigid frame as shown in Fig 4 determine Ds **(5)**

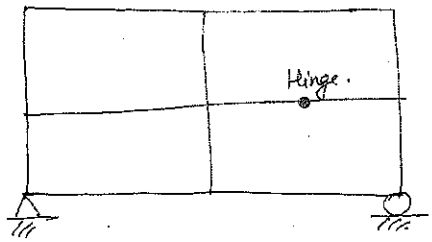

Fig 4

Q5. For 2D rigid frame as shown in Fig 5 determine Ds **(5)**

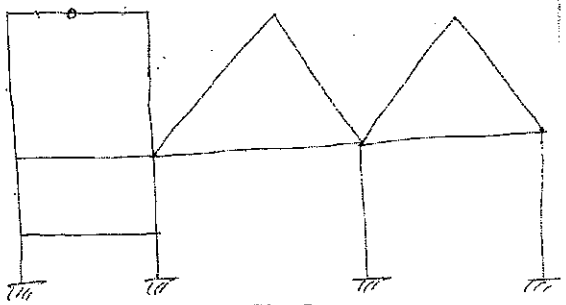

Fig 5

Q6. Determine kinematic determinacy of the frame in Fig. 6 and represent all displacements at joints **(5)**

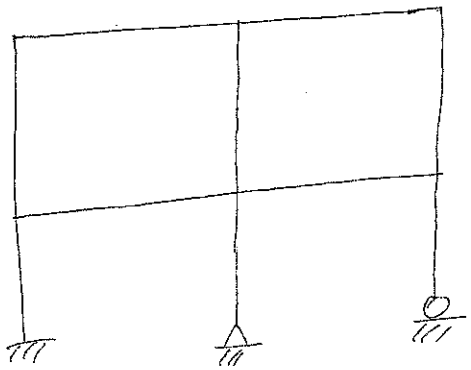

Fig. 6

Q7. A fixed beam at both ends is kinematically determinate but statically indeterminate. Justify this statement using equations. **(4)**