BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BE **SEMESTER: V**
BRANCH: CIVIL **SESSION : MO/2019**

SUBJECT : CE5001 STRUCTURAL ANALYSIS - II

TIME: 1.5 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

Q1 A beam ABCD 9m long is simply supported at A,B and C such that the span AB is 3m, span BC is 4.5m and the overhung CD is 1.5m. It carries a uniformly distributed load of 1.5t/m in span AB and a point load of 1t at the free end D. the moment of inertia of the beam in span AB is I and that in the span BC is 2 I. Draw the B.M and S F diagrams for the beam. Use three moment theorem. [5]

Q2 Determine the influence line for RA for the continues beam shown in fig(1) complete the ordinates at every 2m interval. [5]

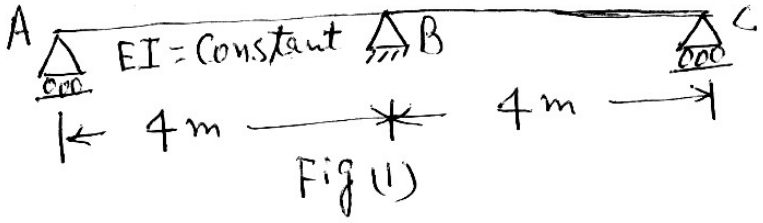

Fig (1)

Q3 A beam of length L is supported at the ends and its middle point as shown in fig(2) the beam carries a uniformly distributed load of per unit rum over the whole span determine the reaction at middle support by the principle of least work. [5]

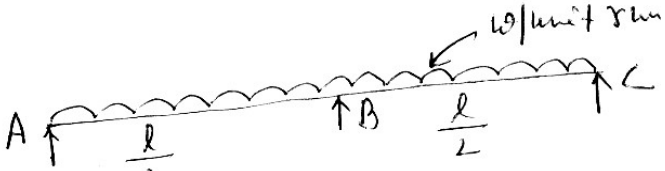

Fig (2)

Q4 A beam ABC of length 16m consists of span AB and BC each 8m long and is simply supported at A, B and C the beam carries a uniformly distributed load of 40kn/m the whole length find the reactions at the support and support moments. use three moment theorem. [5]

Q5 A beam AB 4m long is fixed at A and simply supported at B. it carries a point load of 16KN at a distance of I m from B. determine the reaction at B by the principle of least work. [5]

Q6 (a) Write principle of least work. [2]
(b) What do you know by redundant frame? [3]

:::::: 19/09/2019::::::E