Ministry of Higher Education

The Higher Institute of Engineering & Technology

New-Damietta

Department: Civil Engineering
Level: Three
Semester: Summer-2017/2018
Subject: Structural Analysis (III)
Subject Code: CIE301

Date: July-2018
Time allowed: 90 Min.
Full marks: 20
No. of pages: one

- *Answer the following questions .Diagrams should be neat and to scale.*

Question No. (1) – 10 marks

Using the method of Consistent Deformation, draw the bending moment and the shear force diagrams of the shown statically indeterminate beam illustrated in Fig.1. The bending stiffness of the beam is constant for all spans.

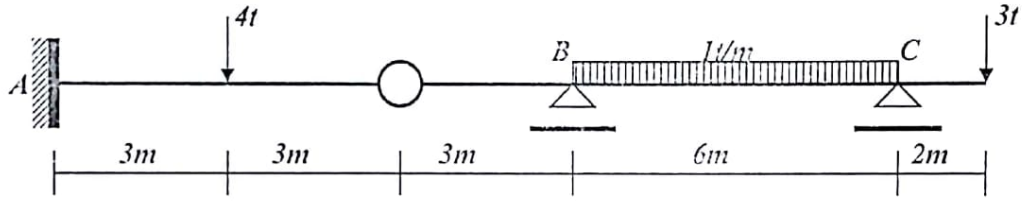


Fig.1

Question No. (2) – 10 marks

Using the Slope Deflection Method, draw *only* the bending moment diagram of the shown statically indeterminate beam illustrated in Fig.2. The bending stiffness for the beam is constant.

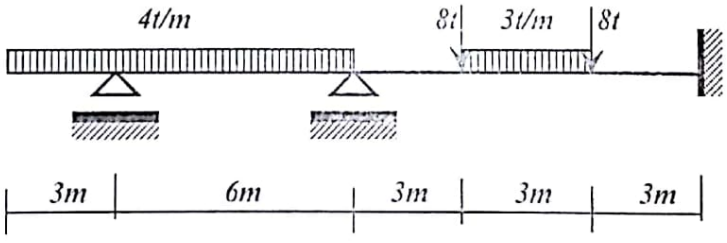


Fig.2

Good Luck

Dr. Rafeek W. Salib

The Model Answer

Question No. (1) – 10 marks

Using the method of Consistent Deformation, draw the bending moment and the shear force diagrams of the shown statically indeterminate beam illustrated in Fig.1. The bending stiffness of the beam is constant for all spans.

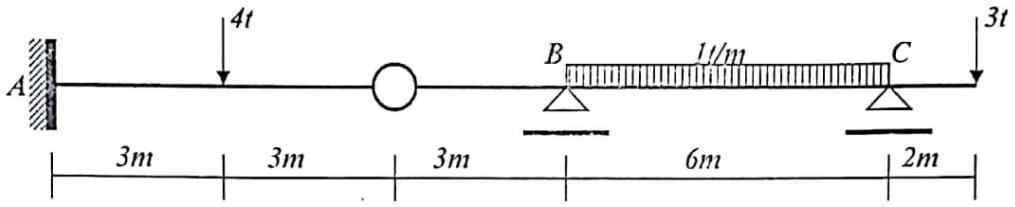
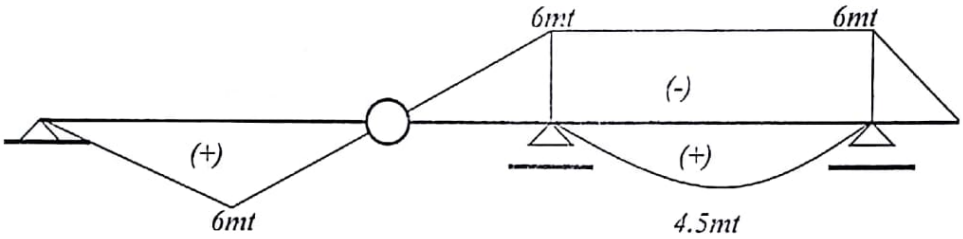
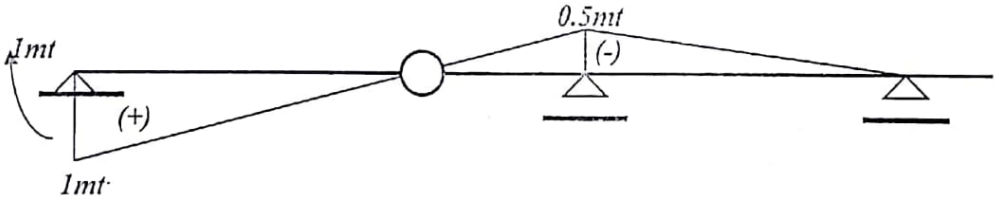


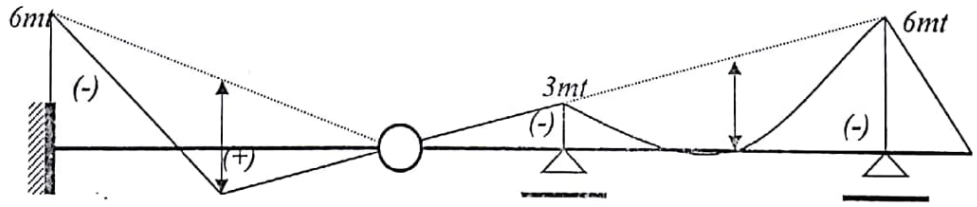
Fig.1



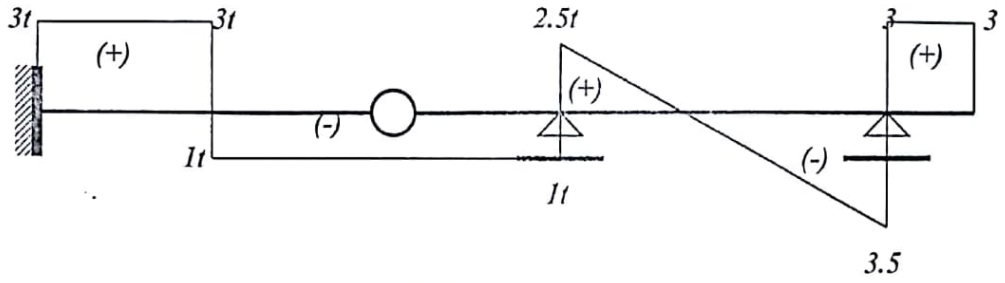
M_o-D



M_1-D



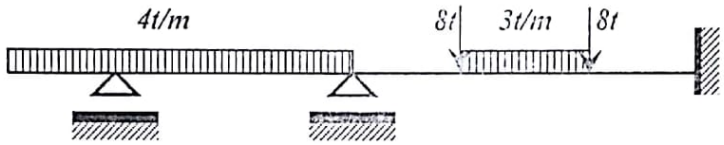
M_f-D



Q-D

Question No. (2) – 10 marks

Using the Slope Deflection Method, draw *only* the bending moment diagram of the shown statically indeterminate beam illustrated in Fig.2. The bending stiffness for the beam is constant.



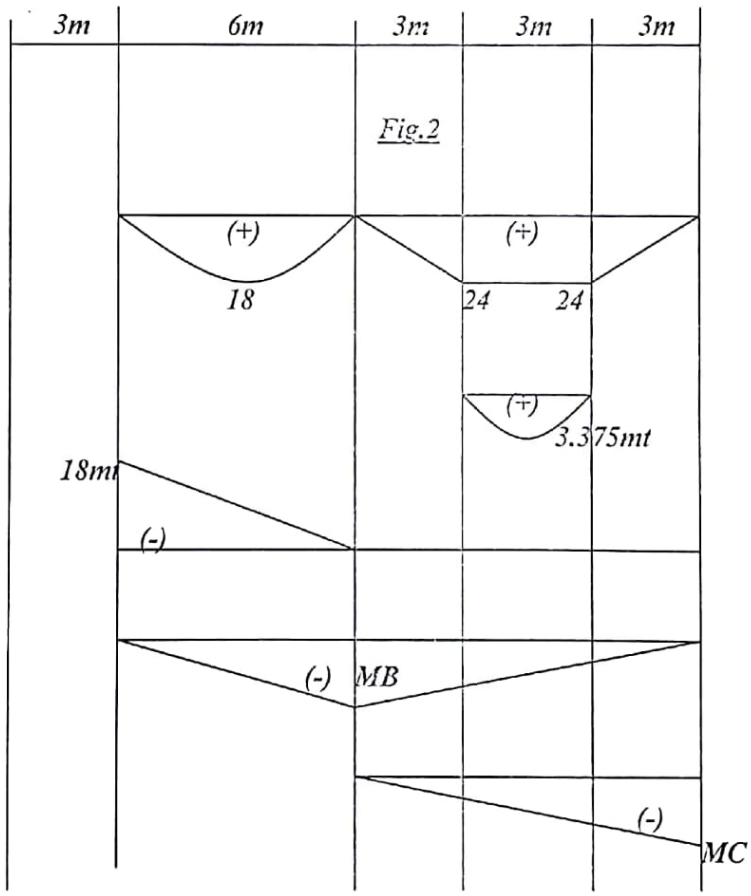
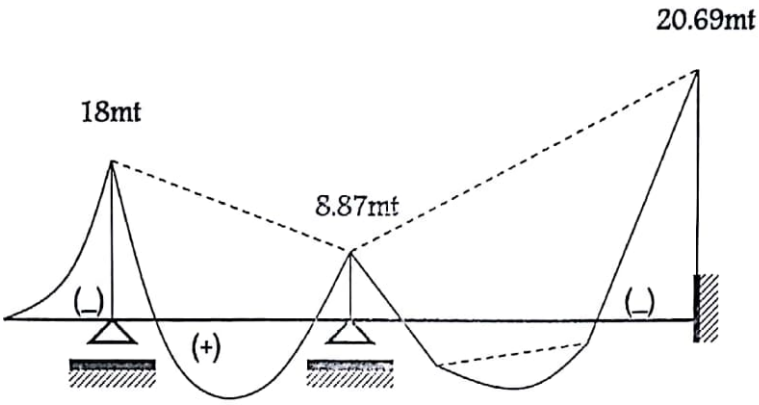


Fig.2



F.B.M.D.