BACHELOR OF ARCHITECTURE (B. ARCH.) (CBCS - 2020 COURSE) B. Arch. Sem-III :WINTER - 2021

SUBJECT: THEORY OF STRUCTURES – III

Day: Wednesday
Date: 22-12-2021

Time: 10:00 AM-12:30 PM
Max. Marks: 60

W-23122-2021

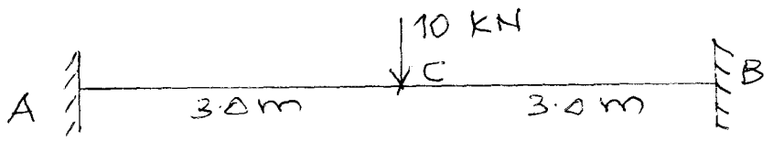
N.B.:

1) Question no.1 is **Compulsory** in Section –I and Q. no. 5 is **Compulsory** in Section – II.
2) Attempt any **TWO** questions out of **Q. no. 2, 3** and **4.**
3) Attempt any **TWO** questions out of **Q. no. 6, 7** and **8.**
4) Figures to the right indicate **FULL** marks.
5) Answers to both the sections should be written in **SEPARATE** answer book.
6) Draw neat diagrams **WHEREVER** necessary.

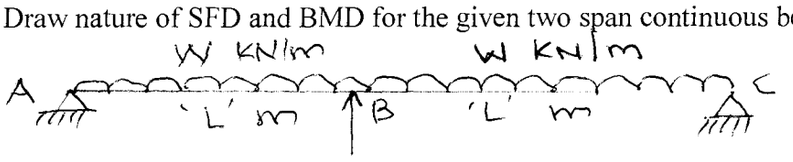
SECTION-I

Q.1 **a)** What is eccentricity? What is effect of eccentricity on column? **(04)**

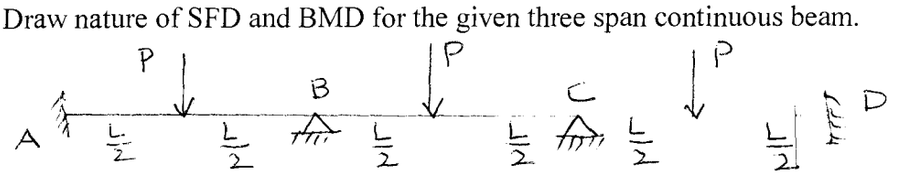
b) Draw SFD and BMD for the given fixed beam. **(06)**



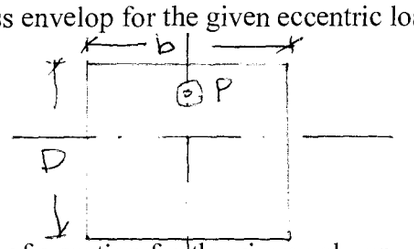
Q.2 **a)** Draw nature of SFD and BMD for the given two span continuous beam. **(04)**



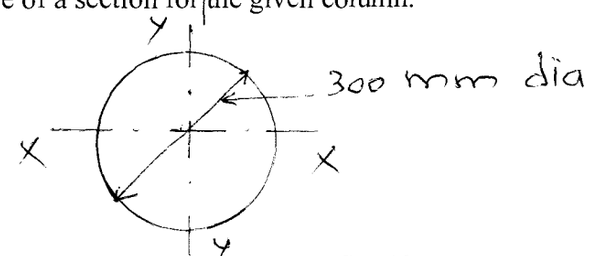
b) Draw nature of SFD and BMD for the given three span continuous beam. **(06)**



Q.3 **a)** Draw stress envelop for the given eccentric loaded column. **(04)**



b) Draw core of a section for the given column. **(06)**



Q.4 **a)** Compare simply supported beam and fixed beam. **(04)**

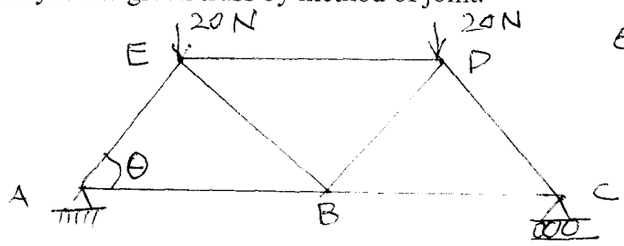
b) Define determinate and indeterminate beam with required conditions. **(06)**

P. T. O.

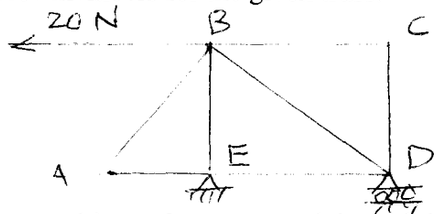
SECTION-II

Q.5 **a)** Explain the procedure of analyzing a truss by method of section. **(04)**

b) Analyze the given truss by method of joint. **(06)**



Q.6 **a)** Determine zero force members for the given truss. **(04)**



b) What is perfect truss and imperfect truss explain with law of truss. **(06)**

Q.7 **a)** What are assumptions in Euler's theory in columns? **(04)**

b) What are limitations of Euler's theory? **(06)**

Q.8 **a)** Calculate effective length for a column having actual length 3.2m for the given End conditions. **(04)**
i) Both end hinge
ii) Both end fixed
iii) One end hinge another fixed
iv) One end fixed another free

b) What is slenderness ratio and explain its relationship with stress and behaviour of column. **(06)**

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