| G.R. No. | |
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| PAPER CODE | U223-225(AE) |
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## May 2023 (ENDSEM) EXAM
### S.Y. (CIVIL ENGINEERING) (AY 2022-23 SEMESTER - II)
COURSE NAME: MECHANICS OF SOLIDS II
COURSE CODE: CVUA 22205
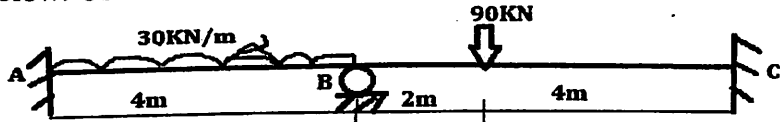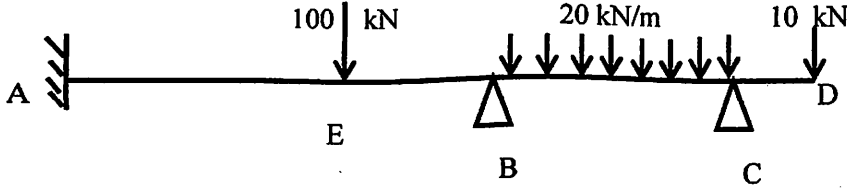## (PATTERN 2020)

Time: [1Hr]                                                    [Max. Marks: 30]

**(*) Instructions to candidates:**
1)   Use of scientific calculator is allowed
2)   Use suitable data where ever required
3)   All questions are compulsory

| Question No. | Question Description | Max. Marks | CO mapped | BT Level |
|---|---|---|---|---|
| Q.1 | a) Determine the support moments for the beam loaded as shown below. Use Moment Distribution Method.<br><br>30KN/m, 90KN<br>A ---- B ---- C<br>4m, 2m, 4m<br><br>**Figure 1** | [4] | [CO4] | [Apply] |
| | b) Determine the support moment for the beam loaded as shown below: AE= 4 m, BE=2 m, BC= 4 m and CD=1 m. Support B and C are hinged supports. Neglect axial deformation<br>Use Moment Distribution Method.<br><br>100 kN, 20 kN/m, 10 kN<br>A --- E --- B --- C --- D<br><br>**Figure 2** | [6] | [CO4] | [Apply] |
| | **OR** | | | |
| | c) Determine the support moments for the frame loaded as shown below. | [6] | [ CO4 ] | [Apply] |
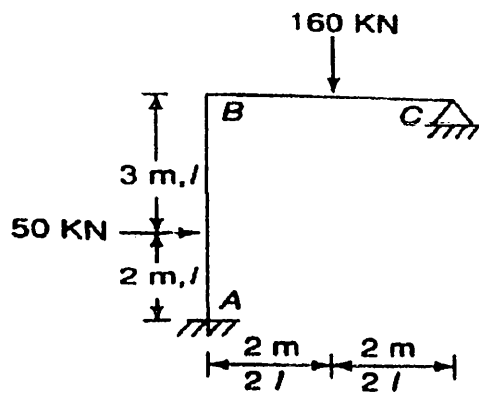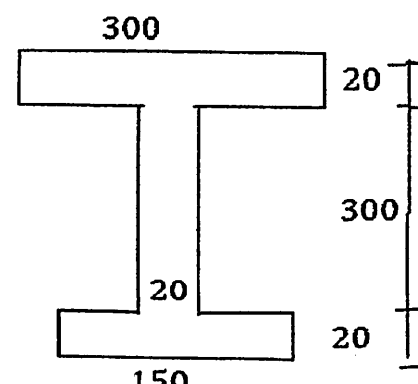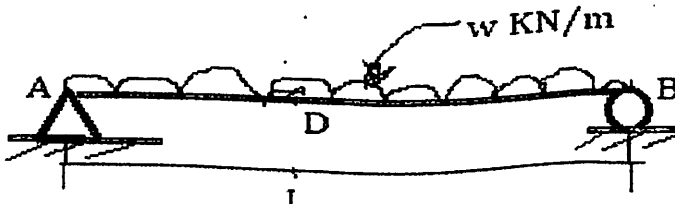
**Figure 3**

| Q.2 | a) Determine the support moments for the beam shown in Figure 1 by stiffness method. | [4] | [ CO5] | [Apply] |
|---|---|---|---|---|
| | b) Determine the support moments for the beam shown in Figure 2 by stiffness method. | [6] | [ CO5] | [Apply] |
| | OR | | | |
| | c) Determine the support moments for the frame shown in Figure 3 by stiffness method. | [6] | [ CO5] | [Apply] |
| | | | | |
| Q.3 | a) Determine the shape factor of hollow rectangular section. Assume the suitable dimensions. | [4] | [ CO6] | [Apply] |
| | b) Determine the shape factor for the following section.  All Dimension in mm | [6] | [CO6] | [Apply] |
| | OR | | | |
| | c) Determine the collapse load by static and kinematic theorem.  | [6] | [CO6] | [Apply] |