Released Date: *30.10.2020*   **Delivery Date:** *02.11.2020 Hour: 09.00*

| Student Number:		A	B	C	D	E	F	G	H
a =0,2×(B+H) + 0,3×(E+G+H)				b = 0,2×(B+G) + 0,3×(D+G+H)					

Homework 1:

a) Determine **the lateral displacement of point G** of the system given in **Figure-1a** due to external loads by using **Virtual Work Principle**.

b) Determine **the relative rotation of point G** of the system given in **Figure 1-b** due to
- i) **t = 15° C** uniform temperature change in tie-rod
- ii) **Δt = 20° C** non-uniform temperature change in solid elements of the system by using Virtual Work Principle.

c) Determine the lateral displacement of point **"c"** due to lateral movement of support A with amount of 2 cm to right direction and 4 cm settlement of support B of the system given in **Figure 1-b** by using Virtual Work Principle.

EI=14700 kNm^2, EA=5,25x10^{6}kN, GA'= 1,69x10^{6}kN, EA, EI and GA' are constant for all structural elements. (α_T =1,3.10^{-5} 1/°C) (f = 45°) (h=50 cm)
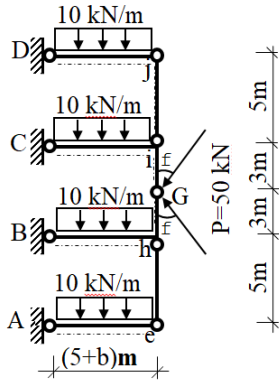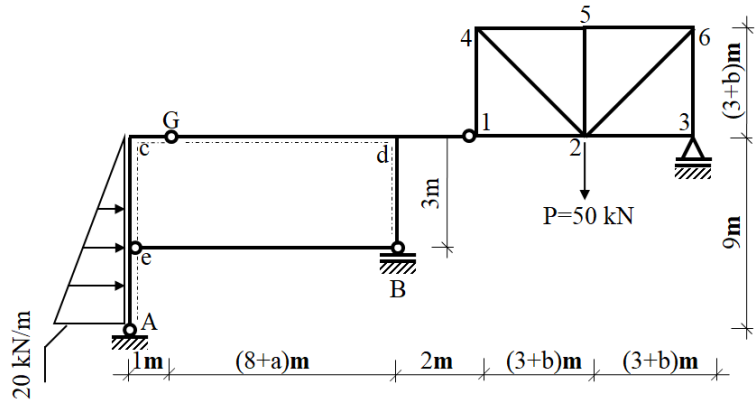
(Şekil-1a)

(Şekil-1b)

NOTE:

- Send your solutions to (<u>ytu2021yapistatigi2@gmail.com</u>) mail address until <mark>02.11.2020 09.00 a.m.</mark> The name of the file should be as <mark>"student number_name_surname_group no_HW1"</mark>
- The homework that is sent after the delivery date **(02.11.2020 Hour: 09.00 a.m)** and hour will not be evaluated.
- This worksheet has been preparedto provide a better understanding of the topics in the coursein case of insufficient practice due to the time limitation of the course. When preparing your homework, it is recommended to you that discuss and evaluate the related questions after the courses. It is clear that you will be more successful if you take this suggestion into consideration.
- All units are **kN** and **m**.
- Drawings and calculations must be **clearly** written **in pencil.**
- Please prepare the cover page according to Thesis Writing rule. Homework cover page which has not been prepared according to thesis writing rules will not be evaluated.

Good Luck….