

**COLLEGE OF ENGINEERING, DEPARTMENT OF CIVIL ENGINEERING**

**COURSE: Structural Design I (RCD) CVE 308 UNITS: 3**

**DEGREE: B.ENG (CIVIL ENGINEERING)**

***ASSIGNMENT TWO: DESIGN OF BEAM AND FOUNDATION***

**QUESTION ONE**

(a) Design an external beam along **AA’** in Figure 1 using Hardy cross moment distribution method.

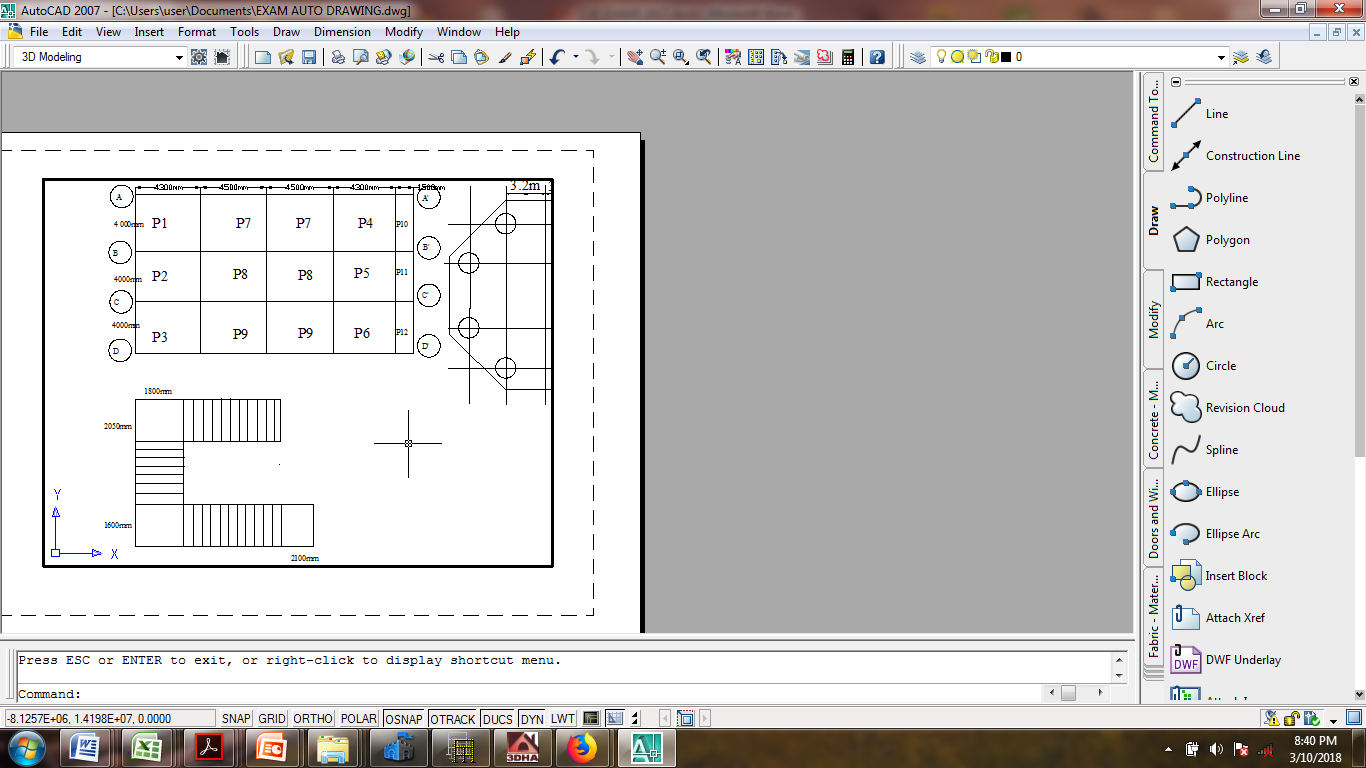
(b) Draw the bending moment and shear force diagram.

**QUESTION TWO**

A 225 mm by 450 mm column supports an ultimate load of 1200kN including its own weight. If the safe bearing capacity (SBC) is 150kN/m2, design a simple pad footing using grade 25-410N/mm2 concrete and steel respectively. Assume foundation depth of 660mm and check for;

i. Punching shear and

ii. Local bond stress.



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