Sohag University	**Forth year (Level 400)**
Faculty of Eng.	**course: Irrig. Works (2)**
Civil Eng. Dep.	**Exercise sheet (3)**

A regulator with Fahmy Henen gates is to be constructed across a 10 m wide canal which data are given below:-

- **Flood/ Summer discharge = 48 m^3/s / 35 m^3/s)**
- **Bligh / Lane coefficient = 16/8**
- **Max. area of gate = 18 m^2**
- **Allowable heading up = 1.7 cm**
- **Span may be taken in between 3 to 4.5 m**
- **Specific weight of concrete/ rubble = 2.3 t/m^3 / 2.35 t/m^3)**

U.S cross section	D.S cross section
F.W.L / S.W.L = 36.5/36	F.W.L / S.W.L = 34/22/33.75
Bed. L / Bearm.L/ Road . L = 31/37/37.5	Bed. L / Bearm.L/ Road . L = 31/37/37.5
Side slope water c.s / road c.s = 1:1 / 2 : 1	Side slope water c.s / road c.s = 1:1 / 2 : 1
Road width = 10 m	Road width = 10 m

Required

a) Fix the number of vents?

b) Check the heading up and the area of the gates?

c) check the stability of regulator pier shown for Max. Normal Stresses Max. Moment about X axis and Y axis if $R_{D.L}$ = 6 ton , $R_{D.L+L.L}$ = 11 ton (at A,B,C,D,E,F,G) and its weight is 125t