	زمن الامتحان : ساعتان	قسم : الهندسة الزراعية
	البرنامـــــج : الهندسة الزراعية والنظم	امتحان : المستوى الثالث
	الحيوية (تخصص هندسة الري والصرف)	الامتحان التحريري النهائي لمقرر:
	كود المقرر : Eng 335	هيدروليكا شبكات الري الحديث
	العام الأكاديمي : ٢٠١٢ / ٢٠١٣	الفصل الدراسي: الثاني
	تاريخ الامتحان : ٢٠١٣/٦/٨	الدرجة الكلية : ٦٠ درجة

This exam consists of one page
Answer all of the following questions

Question (1): *(15-Marks)*

A) What are the minor energy losses? *(7-Marks)*

B) A circular pipe of 1 m diameter has a bed slope of 1 in 1500. Find the maximum discharge through the channel. Take C=50. *(8-Marks)*

Question (2): *(15-Marks)*

A) What are the types of Hydraulic Jump? *(7-Marks)*

B) A channel of rectangular section, 7.5 m wide, is discharging water at a rate of 12 m³/s with an average velocity of 1.5 m/s. Find: *(8-Marks)*
1) Specific-energy head of the flowing water,
2) Depth of water, when specific energy is minimum,
3) Velocity of water, when specific energy is minimum,
4) Minimum specific energy head of the flowing water,
5) Type of flow.

Question (3): *(15-Marks)*

A) Prove that the loss of head due to sudden contraction is given by

$$h_c = 0.375 \frac{V_2^2}{2g}$$ where Co-efficient of contraction = 0.62 *(7-Marks)*

B) A 150 mm diameter pipe reduces in diameter abruptly to 100 mm diameter. If the pipe carries water at 30 L/s. calculate the pressure loss across the contraction. Take the co-efficient of contraction as 0.6. *(8-Marks)*

Question (4): *(15-Marks)*

A) Three reservoirs, A, B and C are connected by a pipe system Shown in figure. The lengths and diameters of pipes 1, 2 and 3 are 800 m, 1000 m, 800 m, and 300 mm, 200 mm and 150 mm respectively. Determine the piezometric head at junction D. take f= 0.005

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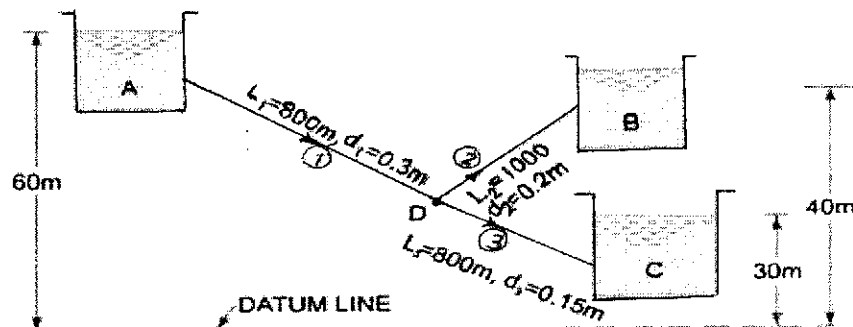
With my best wishes
Dr. Mohamed Maher Mohamed Ibrahim