The Islamic University of Gaza
Civil Engineering Department
Fluid Mechanics-ECIV3321
First Semester (2013-2014)



Instructors:
Dr.Khalil Alastal.
Dr.Younis Almogheir.
TA:Eng.Hasan Almassri
Eng.Mahmoud Alqazzaz
Eng.Ayaa Alnahal

Allowable Time: 2 hours Final Exam

Fluid Mechanics (ECIV3321) Answer the following questions <u>Time Allowed 2 hours</u>

Final Exam

الرقم الجامعي	اسم الطالب/ة

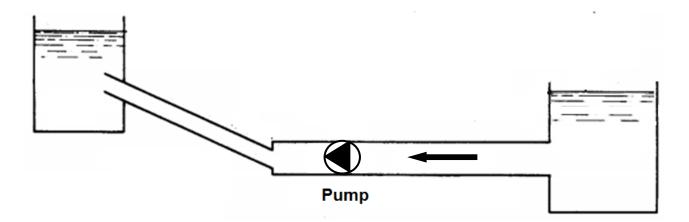
Question No.	Given Mark	Notes	Max. Mark
1			6
2			6
3			10
4			10
5			8
Total			40

Fluid Mechanics Final Exam

Question (1):

(6 Marks)

For the following system, draw the HGL and EGL. [Take care to all details]



Fluid Mechanics Final Exam

Question (2):	(6 Marks)		
A weir of trapezoidal cross section is used to measur	re the flow rate in a channel as si	hown in the	
figure. Derive from the first principles an equatio	n to calculate the discharge th	rough the	
weir. [Using the given dimensions]			
	∇		
	92	101-	
		/	
	L	I	

Fluid Mechanics	Final Exam

Question (3):	(10 Marks)	
Water flows steadily from the large open tank show	wn in the figure. If friction losses a	ıre negligible,
determine:		_
(1) the flow rate (Q).		
(2) the manometer reading (h).		
(3) the diameter (d) if the water level in the	0.10 m	4 m
bottom tank remains constant.	2 m	
	0.08 m Mercui	<u></u> у
₹		
	3m ↓ d	
	0.5m	
	I	
		,

Fluid Mechanics	Final Exam

Question (4):	(10 Marks)
Water flows through a 5 cm diameter pipe which h	nas a 180° vertical bend as shown in figure. The
total length of pipe between flanges 1 and 2 is 75cm	m. When the weight flow rate is 230 N/s, $P_1=165$
kPa and P_2 = 134 kPa. Determine the force acting	
	-
	2
))
	.
	!

Fluid Mechanics	Final Exam
riulu Mechanics	FIIIai Exaii

Question (5):	(8 Marks)	
The hemispherical dome in the shown figure weighs	30 kN and is filled with water and attached to	
the floor by six equally spaced bolts. Determine the		
dome. [Hint: the volume of sphere is $\frac{4}{3}\pi R^3$, where		
aono (rimo de volume of sphere is 3 mil , mare	Te is the radius of the sphere.	
	→ 3cm	
	4 m	
	Six	
	Water 2 m	
		-
		-
		-
		-
		-
		-