



Tanta University
Faculty of Engineering
Irrigation and Hydraulics Engineering Department
Examination M.Sc. Students of Irrigation and Hydraulics Engineering Department



Course Title: Basics of Statistics and Probability

Course Code: CIH 601

Date: /6 / 6 / 2016

Total assessment marks: 60

Time allowed: 3 Hours

Notes:

Systematic arrangement of calculations and clear neat drawings are essential.

You may use your class notes, text, homework solutions and other reading materials to do this exam.

Table 1 presents the monthly inflow records ($M.m^3$) observed at three neighboring stations *A*, *B* and *C* respectively. For the given data it is required to:

- 1) Summarize the distribution of the data set using boxplots. (10 marks)
- 2) Calculate the statistical properties of each station. (10 marks)
- 3) Calculate the correlation coefficient between each two stations. (10 marks)
- 4) Develop a multiple linear regression model to estimate the missing values of *A* (NaN), then evaluate the performance of the developed model. (18 marks)
- 5) Check the homogeneity of the three stations using two different methods. (12 marks)

Table 1

Month	Station A	Station B	Station C
1	39	15	46
2	47	10	23
3	38	13	36
4	39	9	27
5	24	6	22
6	11	6	28
7	12	3	12
8	6	1	6
9	4	1	6
10	9	2	9
11	NaN	4	11
12	NaN	18	49



TANTA UNIVERSITY
FACULTY OF ENGINEERING



Department of Irrigation and Hydraulics Engineering
Examination Post – Graduate Students (Feb. 2015)

Course Title: Inspective Study			Course Code: CIH666
Date: 9 JUNE 2016	Term: FEB 2015	Total Assessment Marks: 60	Time Allowed: 3 Hours

Notes:

- Systematic arrangement of answers and clear neat drawings are essential.
- This examination is **an open book exam**, any reading and assistant material can be used.

Question No. 1 (15 Marks)

“Future climatic changes, such as the increase of air temperature, precipitation changes and sea level rise, have significant impacts on the quantity and the quality of water resources and all other sectors” Explain this according to your studied case showing the predicted problems for Egyptian water resources and other sectors and proposing different adaptation works.

Question No. 2 (15 Marks)

“Drainage water reuse is a backup strategy which is intensively used by Egypt to face the freshwater shortage” based on your studied case, describe the different guidelines which should be followed to re-use drainage water and give examples for different projects which mainly depend on this strategy.

Question No. 3 (15 Marks)

“Egyptian water resources face different challenges which affect its functions” based on your review, discuss the main challenges affect the Egyptian water resources showing recovery strategies which should be managed.

Question No. 4 (15 Marks)

“Grand Ethiopian Renaissance Dam will affect the quantity and the quality of Egyptian water resources” based on your review, discuss the main expected problems and the proposed recovery strategies.

End of Questions

Best Wishes