

**University of Kerbala**

**College of Science**

**Department of Physics**

**Stage: 4th**

**Course Title: Math. Method for Physics**

**Time: 3 hours**

**Final Exam 2014-2015**

**Note: Number of questions (5 )Answer (5 ) only**

**Q1.** For the following periodic function: (10 Mark)

Prove that, the Fourier series is given by:

**Q2.A.** Show that the relation between the components resolved in original system and those resolved in the new rotated system are given by: (6Mark)

**B.** Prove that: (4Mark)

**Q3.A.** Writeusing summation convention.

(5Mark)

**B**. Show that (5Mark)

**Q4.A.** If a unitary matrix is written as, where and are hermitian and commutate. Show the following: (5Mark)

**B.** The forces in three members of a framework are, and. They are related by the simultaneous equations shown below. (5Mark)

Find the values of, and using determinants.

**Q5.A.** Prove that(4Mark)

**B.** Prove that (6Mark)

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Good Luck

Head of Department

Fadhil Al-Taie

Examiner

Mohammed Al-Kaabi