

University of Palestine
Faculty of Applied Engineering and Urban Planning

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| Course Name | Restoration and Rehabilitation of Buildings | | | Course No. | CONS 5204 |
| Academic Year | 2018/2019 | Semester | 2nd | Exam Type | 2 ed Midterm |
| Exam Date | 14/04/2019 | | | Exam Time | 10.5am – 11.5am |

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|------------------------------|--|-----------------|----------------|-----------------|--|
| اسم الطالب (بالعربي): | | | الرقم الجامعي: | | |
| اسم المدرس: علي إبراهيم تاية | | رقم الشعبة: 101 | | وقت المحاضرة: | |
| | | | | الرقم المتسلسل: | |

Important Instructions

- *This is a closed-book exam; all related material must be placed away from your desk.*
- *Cell phone use is prohibited for any purpose: Your cell phone must be turned off and placed off of the desk. Cell phones may not be accessed during the exam. Failure to comply may be treated as a violation of the Honor Code.*
- *Headphones of any kind are not permitted.*
- *This exam is 60 minutes long.*
- *Make sure that you have 4 pages including this page.*
- *This exam has 4 essay questions. Read each question carefully before answering.*
- *Calculators cannot be used.*
- *When you finish, you must:*
 - *Check that you have written your information in the spaces provided.*
 - *Give the exam package (all papers) to the proctor before you leave.*

For Teacher's Use Only For Proctor's Remarks

| QN | KPI/ILO | SO | DL | Mark | Weight |
|--------------|---------|----|----|------|-----------|
| 1 | B1 | e | 4 | | 5 |
| 2 | B1 | e | 5 | | 5 |
| 3 | B1 | e | 3 | | 5 |
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| Total | | | | | 15 |

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KPI: Key Performance Indicator, ILO: Intended Learning Outcomes, SO: ABET Student Objectives, DL: Difficulty Level (1. Very easy, 2. Easy, 3. Moderate, 4. Somewhat hard, 5. Hard, 6. Very Hard)

Q1: Match the term with the appropriate statement. Use the words from the box to complete the sentences.

| | | | |
|-----------------------------|--------------------------------|------------------------------|--------------------------------|
| Slab beam system | Plastic shrinkage | Honeycombing | Differential settlement |
| Poor workmanship | Plasticizers | Excessive deformation | Repair |
| Excessive deflection | Flat plate floor system | Plastic settlement | |
| | Fillers | Crazy cracking | |

- _____ is to correct or replace damaged, deteriorated or faulty materials, components, or elements of a structure.
- _____ the slab is directly supported on the columns without beams.
- _____ occurs at elements subjected to bending moments.
- _____ is one of the popular factors that lead to building defects and failure problems.
- _____ cracks may form at changes of section, e.g. at abeam/slab junction.
- _____ is caused by rapid drying of concrete surface.
- _____ is caused by poor compaction or poor concrete mix.
- _____ may also be added to enhance polymer workability, rigidity, waterproofing, fire resistance, etc.
- _____ may cause the structure to be tilted or twisted.
- _____ which include sand, cement, calcium carbonate silica, asbestos, etc. may be added to polymers to reduce their cost and to increase their strengths.

Q2: Read the following questions carefully, and then write T (true) or F (false) on the line next to the question.

1. ___ Most defects in construction projects are due to human error.
2. ___ Ineptitude management is generally recognized as a major factor of poor construction productivity.
3. ___ Drying shrinkage is caused by evaporation of water during the first hours of casting before setting.
4. ___ Drying shrinkage is decreased with increasing w/c ratio.
5. ___ Polymers are expensive materials that may change their characteristics with time or with expose conditions.
6. ___ To cure efflorescence, use Polymer mortar ADDIBOND 65 or low viscosity epoxy surface coating KEMAPOXY 103 to cover and/or minimize the effect of the cracks.
7. ___ Segregation is caused by pouring concrete from large heights.
8. ___ Repair is the process of maintaining a structure in its present condition and arresting further deterioration.
9. ___ In hardened concrete: the most effective repair is the hand or mechanical troweling to close the cracks.
10. ___ Rehabilitation of structures is one of the fastest growing areas of engineering.

Q3: Read the following questions and answer them accordingly.

3.1 What are the causes of poor quality of workmanship in construction?

3.2 Explain the mitigation measures against plastic shrinkage cracking.

3.3 What are the factors that influence the drying shrinkage?

3.4 Briefly explain the properties of polymer concrete.
