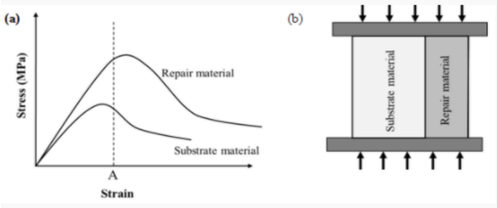
Unit 8 - Week 6

Assignment 6

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-11, 23:59 IST.

1) The stress-strain response of a substrate material and a repair material is given in the Figure 1(a). Consider a concrete column is strengthened using the repair material and the combined system is subjected to axial load (see Figure 1(b)). Assume that the end plates are very stiff. Comment on the stress generated in the substrate and repair material, when the strengthened column experiences an average strain equal to A **2 points**



- [ ] Substrate material will experience more stress than repair material
- [ ] Repair material will experience more stress than the substrate material
- [ ] Substrate material will be crushed
- [ ] Repair material will be crushed
- [ ] Both substrate and repair material will have the same stress

No, the answer is incorrect.
Score: 0

Accepted Answers:
Repair material will experience more stress than the substrate material
Substrate material will be crushed

2) Both shrinkage-compensating and non-shrink cementitious materials are available in the repair material market. Choose the appropriate statement about shrinkage-compensating cementitious materials? **2 points**

- ( ) They will not shrink, but, swell
- ( ) They contain very low cementitious content and resists swelling
- ( ) They prevent shrinkage by reducing the surface tension of water
- ( ) They contain expansive agents

No, the answer is incorrect.
Score: 0

Accepted Answers:
They contain expansive agents

3) Consider two concretes A and B with identical mixture proportion and materials, except the fineness of cement. Both were found to exhibit plastic shrinkage. Cement used in Concrete A is finer than that in Concrete B. Comment on the plastic shrinkage of Concrete A and B at the end of final setting **1 point**

- ( ) Typically, Concrete B will exhibit more plastic shrinkage than Concrete A
- ( ) Typically, Concrete A will exhibit more plastic shrinkage than Concrete B
- ( ) Typically, Concrete A and Concrete B will exhibit similar plastic shrinkage
- ( ) Typically, plastic shrinkage in Concrete A will be twice that of plastic shrinkage in Concrete B

No, the answer is incorrect.
Score: 0

Accepted Answers:
Typically, Concrete A will exhibit more plastic shrinkage than Concrete B

4) Simple layouts with less perimeter and corners are recommended for the patch-repair work to minimise **1 point**

- ( ) Only corrosion and cracking
- ( ) Stress concentration and not cracking
- ( ) Shrinkage, stress concentration and cracking
- ( ) The amount of materials used

No, the answer is incorrect.
Score: 0

Accepted Answers:
Shrinkage, stress concentration and cracking

5) Based on the understanding from the concrete deterioration mechanisms discussed in previous lectures, select the possible mechanisms involved in the destructive action of water jet method **2 points**

- ( ) Direct impact, pressurization, and cavitation
- ( ) Pressurization, abrasion, and cavitation
- ( ) Abrasion and erosion only
- ( ) Cavitation only
- ( ) Erosion and abrasion only

No, the answer is incorrect.
Score: 0

Accepted Answers:
Direct impact, pressurization, and cavitation

6) As shown in the figure, steel reinforcement in a reinforced concrete member was severely corroded and exhibit significant cross-sectional loss. Which of the following procedure(s) should be given least preference to avoid steel corrosion in future after repair work? **2 points**

- ( ) Removal of the corrosion products or rust on the steel surface
- ( ) Undercutting and then providing a relatively uniform electrochemical environment around the corroded steel
- ( ) Providing additional reinforcement with sufficient lap length to transfer the loads
- ( ) Providing anti-corrosive agent, rust remover, etc. on the reinforcing bars without addressing the root cause for corrosion
- ( ) Providing excellent concrete cover material and adequate cover thickness

No, the answer is incorrect.
Score: 0

Accepted Answers:
Providing anti-corrosive agent, rust remover, etc. on the reinforcing bars without addressing the root cause for corrosion