Unit 12 - Week 10

Assignment 10

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

Due on 2020-04-10, 23:59 IST.

1) The figure shown depicts the mechanical damage observed near the expansion joint of a bridge. What are the factors to be considered before selecting the repair strategy? ***4 points***

- [ ] Preventing the entry of soil or other debris into the joint spaces
- [ ] Good corrosion resistance of the materials used for the joint
- [ ] Good impact and fatigue resistance of the concrete repair materials
- [ ] Drainage of water across the sidewalks and railings

No, the answer is incorrect.
Score: 0

Accepted Answers:
Preventing the entry of soil or other debris into the joint spaces
Good corrosion resistance of the materials used for the joint
Good impact and fatigue resistance of the concrete repair materials
Drainage of water across the sidewalks and railings

2) Choose the correct statements about dowel shear devices ***2 points***

- [ ] They transfer high vertical shear loads while allowing vertical movement at the joints
- [ ] They transfer high vertical shear loads while allowing longitudinal movement at the joints
- [ ] They prevent excessive stresses in the slabs by restricting the independent movements
- [ ] They prevent excessive stresses in the slabs by allowing independent movements

No, the answer is incorrect.
Score: 0

Accepted Answers:
They transfer high vertical shear loads while allowing longitudinal movement at the joints
They prevent excessive stresses in the slabs by allowing independent movements

3) To relieve over-stressing of continuous beam elements due to thermal conditions, new expansion joints can be cut/made at points of contraflexure/theoretical zero moment. ***1 point***

- ( ) True
- ( ) False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

4) As discussed in the lecture, what type of fluids can be used as injection grouts for concrete repair applications? ***2 points***

- [ ] Bingham fluids
- [ ] Newtonian fluids
- [ ] Non-Newtonian fluids
- [ ] Shear thickening fluids

No, the answer is incorrect.
Score: 0

Accepted Answers:
Bingham fluids
Newtonian fluids

5) You are asked to repair structural cracks (including hair line cracks) in a high-strength concrete beam of an industrial building to maintain its structural integrity. Which target properties of the injection grout would you consider for an effective filling and load transfer? ***2 points***

- [ ] Low viscosity
- [ ] High viscosity
- [ ] High compressive strength
- [ ] Low bond strength with concrete

No, the answer is incorrect.
Score: 0

Accepted Answers:
Low viscosity
High compressive strength

6) Gradual failure could result in shorter redevelopment length than sudden impact load failure. ***1 point***

- ( ) True
- ( ) False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

7) Which is the preferred location to cut and restress the strands in prestressed beams/slabs? ***3 points***

- ( ) Region, where shear force is maximum
- ( ) Region, where shear force is zero
- ( ) Region, where bending moment is maximum
- ( ) Region, where bending moment is zero

No, the answer is incorrect.
Score: 0

Accepted Answers:
Region, where bending moment is zero