Unit 11 - Week 9

Assignment 9

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

Due on 2020-04-01, 23:59 IST.

1) Select the repair practice(s) that can be considered as an active strengthening of existing structural members — ***2 points***

- [ ] Post-tensioned GFRP sheets underneath beams to prevent deflection
- [ ] Gluing/adhesion of unbolted steel plates underneath roof slab of a building
- [ ] Four side jacketing of concrete beams with additional reinforcement
- [ ] Gluing/adhesion of unstressed FRP composite laminates underneath slabs

No, the answer is incorrect.
Score: 0

Accepted Answers:
Post-tensioned GFRP sheets underneath beams to prevent deflection
Four side jacketing of concrete beams with additional reinforcement

2) Due to the early removal of formwork, a simply-supported reinforced concrete beam experiences. Which of the following is/are true? — ***1 point***

- ( ) Flexural cracks can occur at the top of mid-span
- ( ) Flexural cracks can occur at the bottom of mid-span
- ( ) Flexural cracks can occur (in an inclined pattern) near the supports

No, the answer is incorrect.
Score: 0

Accepted Answers:
Flexural cracks can occur at the bottom of mid-span

3) Punching shear resistance of a column-slab joint can be enhanced by: — ***2 points***

- [ ] Replacing existing column with a column cast using high strength concrete and same lateral dimensions
- [ ] Increasing the effective cross-sectional area of the critical shear plane of the slab
- [ ] Providing a drop panel /capital
- [ ] Increasing the cross-sectional area at the column footing

No, the answer is incorrect.
Score: 0

Accepted Answers:
Increasing the effective cross-sectional area of the critical shear plane of the slab
Providing a drop panel /capital

4) Which of these strategies given below will come under flexural strengthening of a beam by span shortening? — ***2 points***

- [ ] Providing additional steel I-section beams below and along the direction of the existing beam
- [ ] Enlarging the size of the capital of the column supporting the beam
- [ ] Adding steel or concrete diagonal braces to the beams

No, the answer is incorrect.
Score: 0

Accepted Answers:
Enlarging the size of the capital of the column supporting the beam
Adding steel or concrete diagonal braces to the beams

5) Choose the correct statements relating to base isolation technique — ***2 points***

- [ ] It is a type of stress reduction technique for beams
- [ ] The elastomeric bearings absorb and dampens the lateral loads during earthquakes
- [ ] It minimizes the bending of the columns due to lateral loads during earthquakes
- [ ] It does not transfer the vertical loads during extreme events

No, the answer is incorrect.
Score: 0

Accepted Answers:
The elastomeric bearings absorb and dampens the lateral loads during earthquakes
It minimizes the bending of the columns due to lateral loads during earthquakes

6) The photograph shown was taken during the visual inspection of a bridge birder. Choose the most appropriate inference(s) from the following options — ***2 points***

- [ ] Flexural stress in the member exceeded its flexural capacity
- [ ] Shear stress in the member exceeded its shear capacity
- [ ] Members can be strengthened by bonding carbon fiber laminates on the underside of the girders and in the axial direction of the beam
- [ ] Member can be strengthened by wrapping all the three sides of the girder with CFRP laminates/plates

No, the answer is incorrect.
Score: 0

Accepted Answers:
Shear stress in the member exceeded its shear capacity
Member can be strengthened by wrapping all the three sides of the girder with CFRP laminates/plates

7) Which among the following is/are preferred strengthening technique(s) when the space below the girder is inaccessible and/or the headroom is very limited? — ***2 points***

- [ ] Use of UHPC as a concrete overlay
- [ ] Bonded steel plates below the girder
- [ ] Beam overlay on 3-sides with additional reinforcement
- [ ] Beam overlay on the bottom face with additional reinforcement

No, the answer is incorrect.
Score: 0

Accepted Answers:
Use of UHPC as a concrete overlay
Bonded steel plates below the girder

8) Introducing shear walls between the columns and beams can help in enhancing the following. — ***2 points***

- [ ] Moment resisting capacity of the beam-column system
- [ ] Lateral stability of columns
- [ ] Earthquake resistance of the building system
- [ ] Resistance to settlement of the footing

No, the answer is incorrect.
Score: 0

Accepted Answers:
Moment resisting capacity of the beam-column system
Lateral stability of columns
Earthquake resistance of the building system