Assignment 12

Due on 2019-10-23, 23:00:00

1. ________ poisons are mainly responsible for the personality characteristics of concrete.
   - Calcium
   - Boric acid
   - None of the above
   [1 point]

2. The sorptivity index of concrete mixes tends to reduce with the increase in cement replacement with SCM's.
   - True
   - False
   [1 point]

3. Choose the reason which is not suitable for the concrete to gain strength on set.
   - Presence of local differences in applied stress
   - Presence of stress concentrations
   - Concretes place is more active than firmer phase
   - Differences in oxygen concentration at different sites of set
   [1 point]

4. Four cases of stress are considered in concrete, which among the following components will suffer loss of material?
   - Carbon
   - Air
   - Electric
   - None of the above
   [1 point]

5. From the listed options below, choose the material which does not act as a source for alkali to initiate ASR in concrete.
   - Aggregates
   - Cement
   - Water
   - None of the above
   [1 point]

6. Which among the characteristics of aggregates listed below are favorable for alkali-silica reaction?
   - Presence of fine-grained fillers
   - Presence of abundant quartz
   - Presence of lime -- silica gel
   - I & II only
   - I, II & III
   - I & III only
   - None of the above
   [1 point]

7. In terms of diffusion pressure related to durability of concrete, fick's 1st law is applicable for 
   -......
   [0 points]

8. In terms of diffusion pressure related to durability of concrete, fick's 2nd law is more suitable for 
   -......
   [0 points]

9. Corrosion failure in concrete is an indication of which type of deterioration mechanism.
   - Alkali Silica Reaction
   - Drying shrinkage
   - Freezing and thawing
   - Creep
   [1 point]

10. Choose the statement which is not true in explaining the mechanism of freezing and thawing
    - Water expands by 8% - 10% upon freezing
    - Freezing in the small pores does not occur until -40°C
    - Concrete will deteriorate if it remains frozen throughout its life time
    - None of the above
    [1 point]

11. In the cementitious systems with SCM, the increased porosity during carbonation occurs because of:
    - Direct attack on C-S-H
    - Precipitation of calcium hydroxide
    - Consumption of calcium hydroxide by pozzolanic reaction
    - Decreased formation of ettringite
    [1 point]