Assignment-6

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

Due on 2019-03-13, 23:59 IST.

1) Consider the following statements is FALSE in the context of the use of fly ash as partial replacement for portland cement

- The normal dosage of fly ash addition is in the range of 15% - 35% (replacement of portland cement) [1 point]
- Fly ash can be used with other materials to produce building blocks for constructing masonry walls
- In alkali activated fly ash concretes, cement is completely replaced by fly ash
- In the manufacture of portland pozzolana cement with fly ash addition, the fly ash is added during the grinding of clinker

No, the answer is incorrect.
Score: 0
Accepted Answers:
In the manufacture of portland pozzolana cement with fly ash addition, the fly ash is added during the grinding of clinker

2) Identify the TRUE statement with regard to the classification of fly ash [0 points]

- Fly ash of lignitic variety usually contains higher amounts of (S + A + F) as compared to other fly ashes
- As per Indian Standards, the (S+A+F) content should be less than 70% for siliceous fuel ash
- As per Indian Standards, calcareous fuel ash should contain at least 25% SiO2
- Class F fly ashes have higher iron content and lower calcium content than Class C fly ashes

No, the answer is incorrect.
Score: 0
Accepted Answers:
Class F fly ashes have higher iron content and lower calcium content than Class C fly ashes
and the pore size distribution are refined
- Flow and compressive strength tests are the only characterization tests for fly ash, which are mentioned in Indian Standards
- One factor that affects the air content of PCBPS due to fly ash addition is its carbon content

No, the answer is incorrect.
Score: 0
Accepted Answers:
Flow and compressive strength tests are the only characterization tests for fly ash, which are mentioned in Indian Standards

4) Identify the FALSE statement with regard to fly ash
- Moisture content in fly ash causes significant problems during handling and transportation
- Sulfate resistance of portland cement based paste systems (PCBPSs) is reduced with fly ash addition due to reduction in their porosity and permeability
- Addition of fly ash to concrete decreases the heat of hydration and increases the setting time
- The use of fly ash in PCBPSs is usually preferred for cold weather concreting

No, the answer is incorrect.
Score: 0
Accepted Answers:
The use of fly ash in PCBPSs is usually preferred for cold weather concreting

5) Identify the TRUE statement with regard to the physical requirements of fly ash
- As per IS, the minimum fineness specified for fly ash is lower than the minimum fineness specified for ordinary portland cement
- Minimum expansion by Le Chatelier specified in Indian Standard is 0.80%
- As per IS, the reduction in compressive strength of concrete mixtures containing fly ash upto 20% as compared to the control or reference mixture is acceptable
- As per IS, at least 34% (by weight) of the particles should be retained on the 45 micron sieve after wet sieving the fly ash

No, the answer is incorrect.
Score: 0
Accepted Answers:
As per IS, the reduction in compressive strength of concrete mixtures containing fly ash upto 20% as compared to the control or reference mixture is acceptable

6) Identify the TRUE statement with regard to the physical and chemical requirements given in relevant Indian Standards for the use of silica fume as a pozzolonic material
- The maximum SiO$_2$ content of silica fume should be 85%
- The mean particle diameter is approximately 1/100 times of the average particle diameter of ordinary portland cement
- The minimum compressive strength at 28 days of silica fume mixture as a percentage of control mixture should be 85%
- Minimum specific surface area of silica fume should be 15 cm$^2$/g

No, the answer is incorrect.
Score: 0
Accepted Answers:
The mean particle diameter is approximately 1/100 times of the average particle diameter of ordinary portland cement

7) Identify the TRUE statement with regard to the use of silica fume as a pozzolonic material
- The maximum SiO$_2$ content of silica fume should be 85%
- The mean particle diameter is approximately 1/100 times of the average particle diameter of ordinary portland cement
- The minimum compressive strength at 28 days of silica fume mixture as a percentage of control mixture should be 85%
- Minimum specific surface area of silica fume should be 15 cm$^2$/g

No, the answer is incorrect.
Score: 0
Accepted Answers:
The mean particle diameter is approximately 1/100 times of the average particle diameter of ordinary portland cement
Silica fume is not recommended as an admixture in grouts because it reduces the cohesiveness and plasticity of the mixture.

Silica fume can be white in colour if its oxide compositions are appropriately modified.

The C/S ratio of secondary C-S-H gel produced during the pozzolanic reaction of silica fume is equal to 2.0.

The spherical shape of silica fume particles helps in decreasing water demand or requirement in concrete of a given or required workability.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Silica fume can be white in colour if its oxide compositions are appropriately modified

8) Identify the TRUE statement with regard to the use of ground granulated blast furnace slag (GGBFS) as a pozzolonic material.

If the average 28-day strength of control or reference mixture is up to 20% lower than that of a similar concrete mixture containing GGBFS, the slag is classified as “Grade 80” slag.

Slag particles are angular in shape like ordinary portland cement.

Addition of GGBFS to an ordinary portland cement system increases its water demand for a given workability.

GGBFS is preferred for the situation that requires the quick removal of formwork.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Slag particles are angular in shape like ordinary portland cement

9) Identify the TRUE statement with regard to the use of ground granulated blast furnace slag (GGBFS) as a pozzolonic material.

The addition of GGBFS reduces the compressive strength of concrete at 0 to 56 day curing period.

At higher replacement level of GGBFS, the setting time of portland cement based paste systems reduces.

The addition to GGBFS to ordinary portland cement system is independent of the system’s ability to entrain air.

GGBFS contains higher amounts of magnesia and free lime than silica fume.

No, the answer is incorrect.
Score: 0
Accepted Answers:
GGBFS contains higher amounts of magnesia and free lime than silica fume

10) Identify the FALSE statement with regard to pozzolans.

Silica fume reduces the bleeding in a concrete mixture due to high specific surface area.

Ground granulated blast furnace slag usually contains higher amounts of calcium oxide than fly ash.

The specific gravity and fineness of ground granulated blast furnace slag is higher and lower than that of silica fume, respectively.

Silica fume is used in mass construction as it significantly reduces heat of hydration.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Silica fume is used in mass construction as it significantly reduces heat of hydration