

AFAQ AHMAD

id: 16669

Assignment: Concrete Technology

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Semester: 2<sup>nd</sup> Section - "B"

BE (Civil) Engineering:

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Q No: 1

To Prevent from flash  
Setting:- Cement:

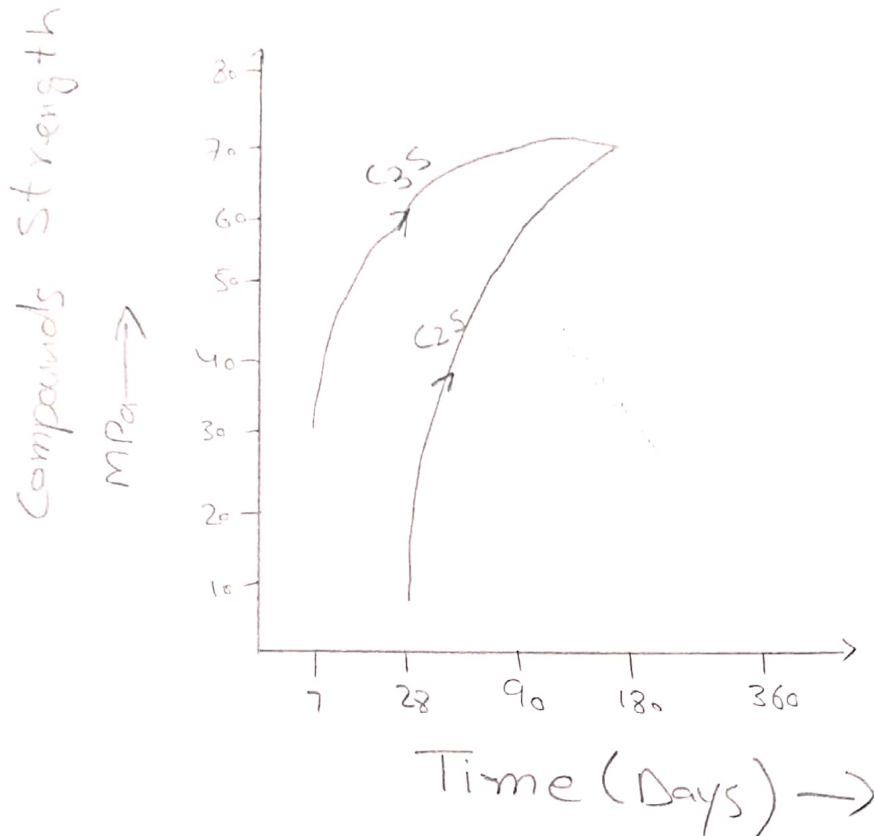
The Cool Cliner is  
crushed with about 3% gypsum  
( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ) in order to prevent flash  
Setting of Cement-

Prevention of False Setting  
of Concrete:

IF Premature stiffening of cement  
occure within a few minutes of  
adding water to setting can be  
removed by remixing the cement  
(concrete) paste without adding  
water.

Q No 2): Draw a graph the Strength development of Pure Compounds of Cement?

Ans Strength Development Compounds of Cement.



Q No 3

Ans Type (iii) Rapid Hardening Cement.

Type III  $C_3S \leq 55\%$ 

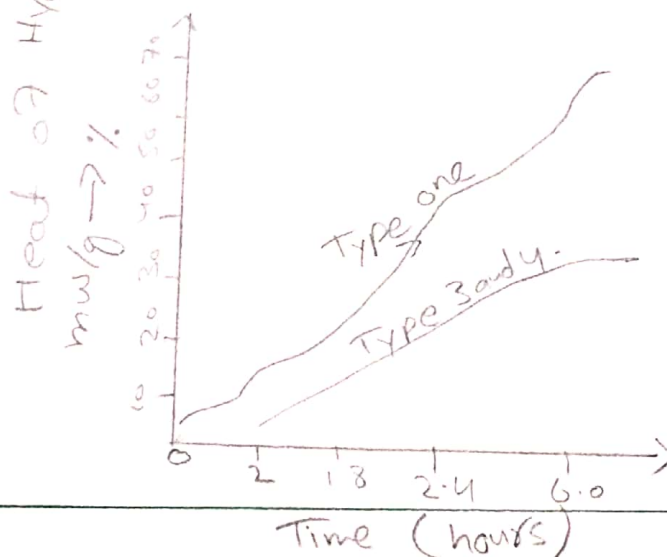
It contains more  $C_3S$  - Hydrates rapidly generating high heat and develops on early hardness and strength (7 days strength)

Low Heat Producing Cement (Type IV)

Type IV  $C_2S > 40\%$ 

It contains more  $C_2S$  it hydrates and hardens slowly and takes long time to add the strength.

Graph showing the development of heat of hydration of cement.



Q No 4

Ans

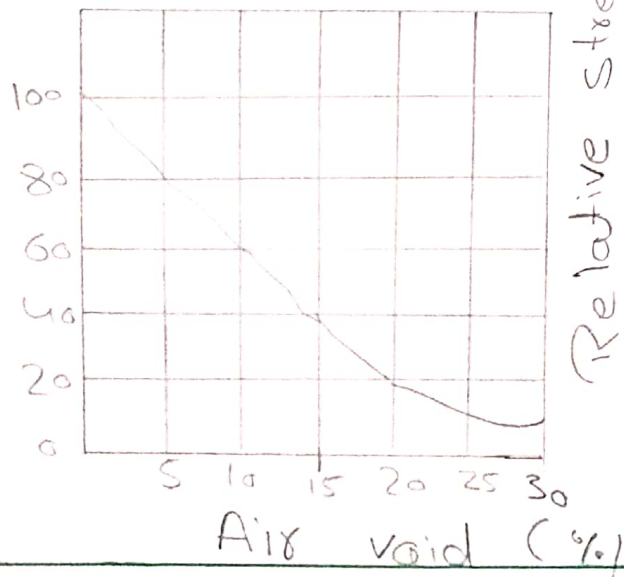
Compacting of Entrapped air of Concrete::

Compaction is the process which expels entrapped air from freshly placed concrete and packs the aggregate particles together so as to increase the density of concrete. It increases significantly the ultimate strength of concrete and enhances the bond with reinforcement.

Strength of Concrete:-

Improper Compacting can effect a concrete upto greater extent, like the entrapped air with loads to exact the concrete even and mix its strength.

GRAPH::



Q No 5::

Ans Generally gypsum is added in the range of 3% - 5% to Cement of delaying the setting time of Cement.

That is why gypsum is also known as retarding agent of Cement.

When we add gypsum is more than 5% - It accelerates the setting time because gypsum generate its own clotting agent resulting in quick setting of Cement it also result in weausey strength and inevitable expansion.

(Q No 6)

Ans: Shape of Aggregate:  
(Angular shape aggregate is the best)

They have sharp, angular and rough particles having maximum voids (about 40 Percent).

Size of aggregate:

The maximum size of aggregate is 75mm.

Texture of aggregate:

The surface texture of aggregate can be either smooth or rough.

Bleeding:

Bleeding is a form of segregation when some of the water in the concrete tend to rise to the surface.

(Q No 7)

Ans: Porosity and absorption  
 The entrapped air bubble  
 in the rocks during their formation  
 lead to minute holes or Cavities  
 known as pores.

The Porous aggregate absorb  
 more moisture, resulting less  
 of workability of concrete.

2 Air entraining agent:

Air Entraining  
 is the intentional exertion of  
 tiny air bubbles in concrete.

3 Grading of aggregate:

This is one of the  
 factor which will have maximum  
 influence on workability. A  
 well graded aggregate is  
 the one which least amount  
 of voids are less.

(Q No 8)

Ans Strength of Cement:

Strength of cement is directly proportional to the fineness of cement.

Rate of Heat evolution:

Rate of heat evolution during hydration decrease due to replacing cement with fly ash of different fineness.

Workability of concrete:

Fineness of concrete load to make the concrete paste on more workable.

Total heat of Hydration:

Greater the heat of hydration will be if the cement particles are more finer.



Q No 9 ..

Ans The concrete mix should be properly designed with optimum quantity of water to make a cohesive mix. Such concrete will not exhibit any tendency for segregation.

Field quality must be maintained while handling, transporting, placing & compacting and finishing.

Admixture, such as pozzolonic material or air entraining agent should be used to avoid segregation.