

# IQRA NATIONAL UNIVERSITY

Student ID # 16312

mid-term

Civil-engineering

Semester 2

Semester = 2

Section B

Q2

~~Ans~~

Ans:- "Step of Prevent Flash Setting of Cement"

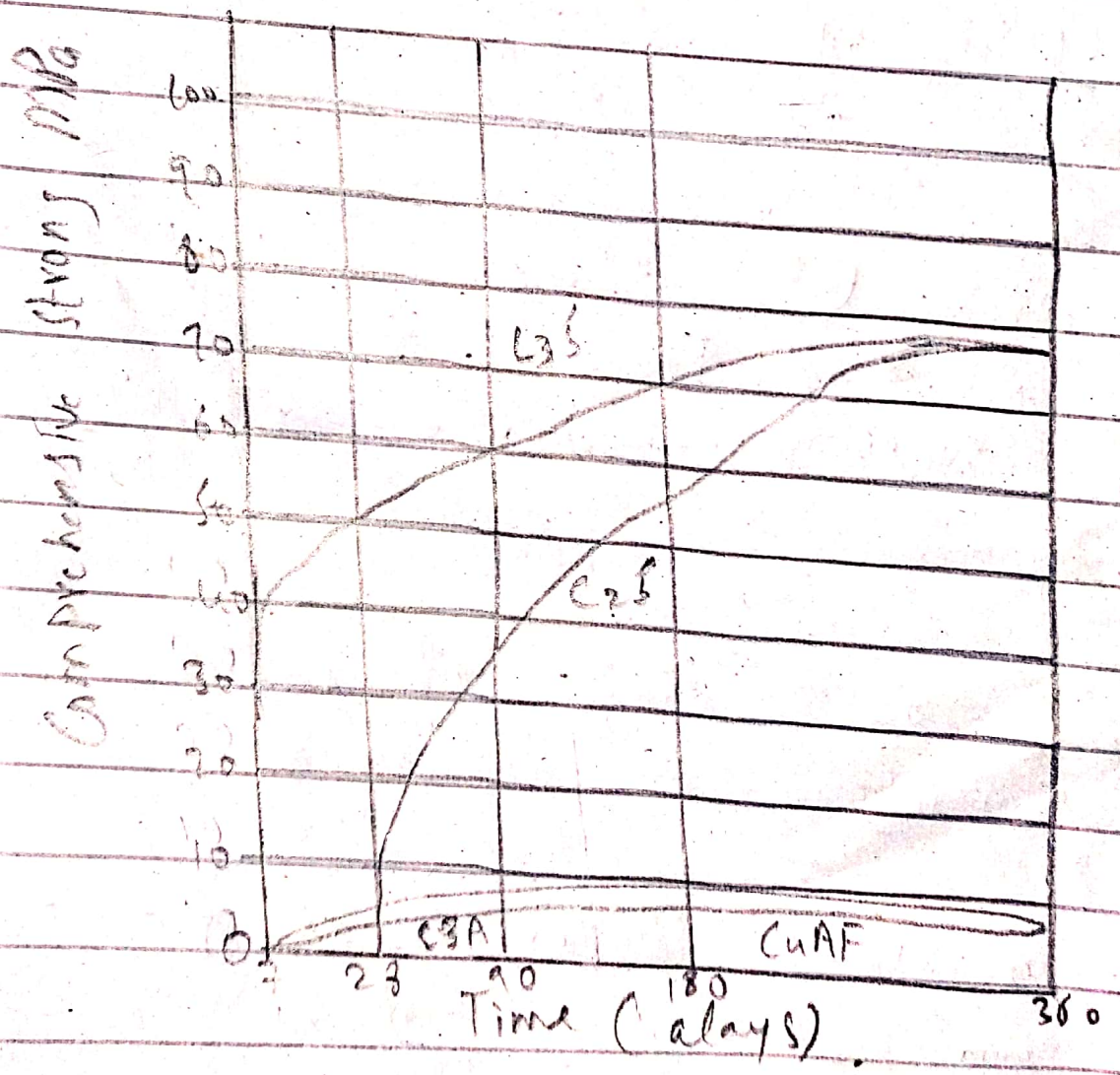
→ to prevent flash setting of cement, gypsum is added to the ~~concrete~~ clinker while grinding.

"Prevention of false setting of concrete"

→ IF premature stiffening of cement occurs ~~in~~ within a few minutes of adding water to setting can be removed by remixing the ~~to~~ cement (concrete) paste without adding

Q:- Draw a graph showing the strength development of pure cement compound of cement.

Ans:- Strength Development of Pure Compound of cement.



Q:- Why type III cement is rapid hardening and type IV low heat producing? Draw a graph showing heat of hydration of different types of cement.

Ans:- Rapid Hardening Cement (Type III).

→ This type of cement develops strength more rapidly and is so called high early strength cement. The rapid hardening of this cement is due to a higher  $C_3S$  content even sometimes upto 70% and also because of fine grinding of the cement clinkers.

Low heat producing cement (Type IV)

→ This type of cement contains less amount of  $C_3S$  and  $C_3A$  which result in slow development of strength and producing less heat which makes this

Cement of low heat.  
Portland Pozzolana Cement and  
be specified to be of  
low heat variety.

Q:- 4

Ans:- "Effect of Compaction on Entrapped Air of concrete"

→ Compaction ~~expel~~ expels entrapped air from fresh placed concrete and packs the aggregate particles together. So as to increase the density of concrete.  
It also increase the strength of concrete.  
It also improve durability of concrete.

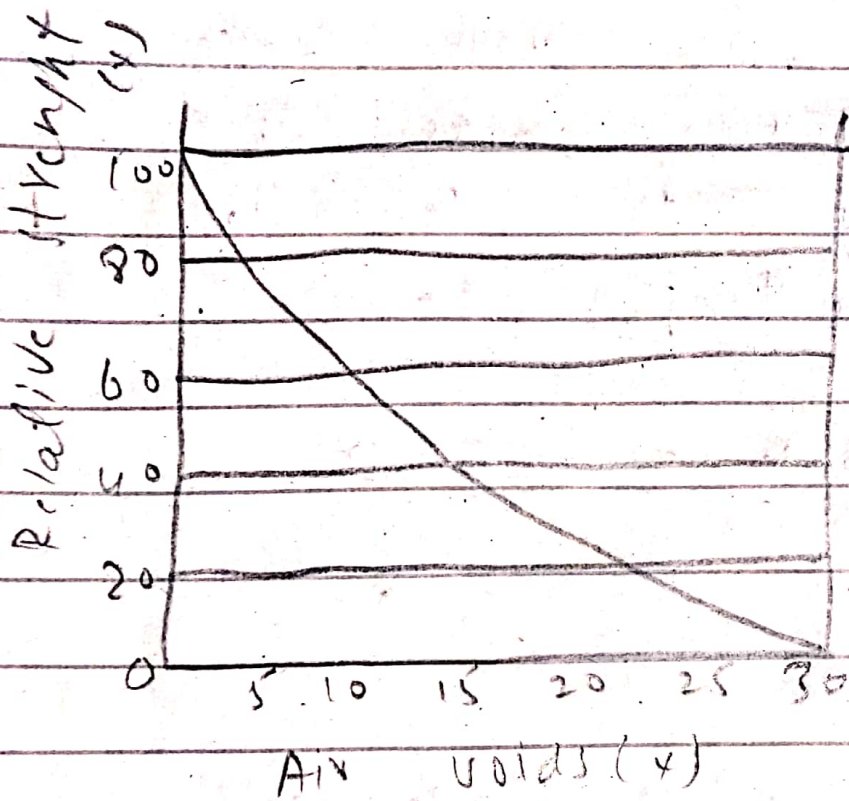
"Effect on strength of concrete if not compacted sufficiently."

→ in case a concrete is not

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Compacted sufficiently, it will have entrapped air (voids) which will greatly reduce its strength.

Explanation with Graph.



Ans:- "Percentage of Gypsum:-

→ it is very important to add 3% - 5% exactly to cement, because it acts as a set retarder. It prevents the Portland cement from flash set.

Adding additional amount of gypsum will cause false set. The gypsum acts as a binder, causing the sensation of ~~setting~~ sitting.



Q: 6

Ans:- Effect of shape of aggregate on bond strength of concrete.

→ Angular Aggregates:-  
 $\underline{\quad} \underline{\quad} \underline{\quad} \underline{\quad}$  increased flaking

the less will be the workability  
and higher will be bond strength  
and vice versa.

"Effect of Texture of aggregate  
on the bond strength of concrete."

→ ~~Porous~~ Porous aggregate need more  
water as compared to absorbent  
strength hence porous aggregate  
should be avoided.

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"Effect of bleeding on the Bond strength of concrete"

→ bleeding has a bad effect on the bond strength of concrete because it decrease the bond strength

"Effect of Grading on workability of concrete"

→ Grading of aggregate have the maximum effect on the workability of concrete. well graded aggregate have all sizes in required proportion. This help in reducing the voids in a given volume of aggregates which help in improving the ~~workability~~ workability.



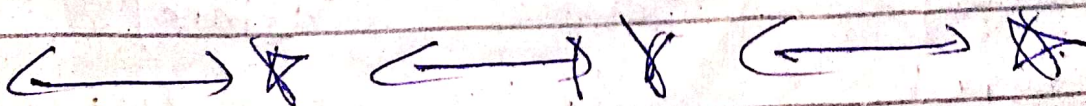


Q: 7

Ans:- "Effect of Porosity & Absorption on workability of concrete."

→ If there is more porosity the concrete will be most workable and vice versa.

Absorption will effect the workability in the following way. Since concrete contains aggregate which disturbs the water to cement ratio because aggregate absorbs it self also absorb water. If the water and equipment water for this absorption is not added as per the required water to cement ratio, the workability will reduce. The case will be of opposite if aggregates contains excess water.



Q 8.

~~Q 8~~ Ans:- Effect of ~~finest~~  
Fineness of cement  
on strength of concrete.

→ Strength of concrete increase  
will on increase in ~~for~~ cement  
fineness.

(→) \* — \* — \* — \*

Q 9

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

Field quality ~~to~~ must be  
maintained while handling  
transporting, placing and ~~compacti~~  
compacting and finishing.  
admixtures, such as Pozzolanic  
material or mix entrainers

agent should be used  
to avoid segregation.

