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Subject :- Concrete Technology.

Q.1) Which step is taken to prevent flash setting of cement? Also write steps to prevent false setting of concrete?

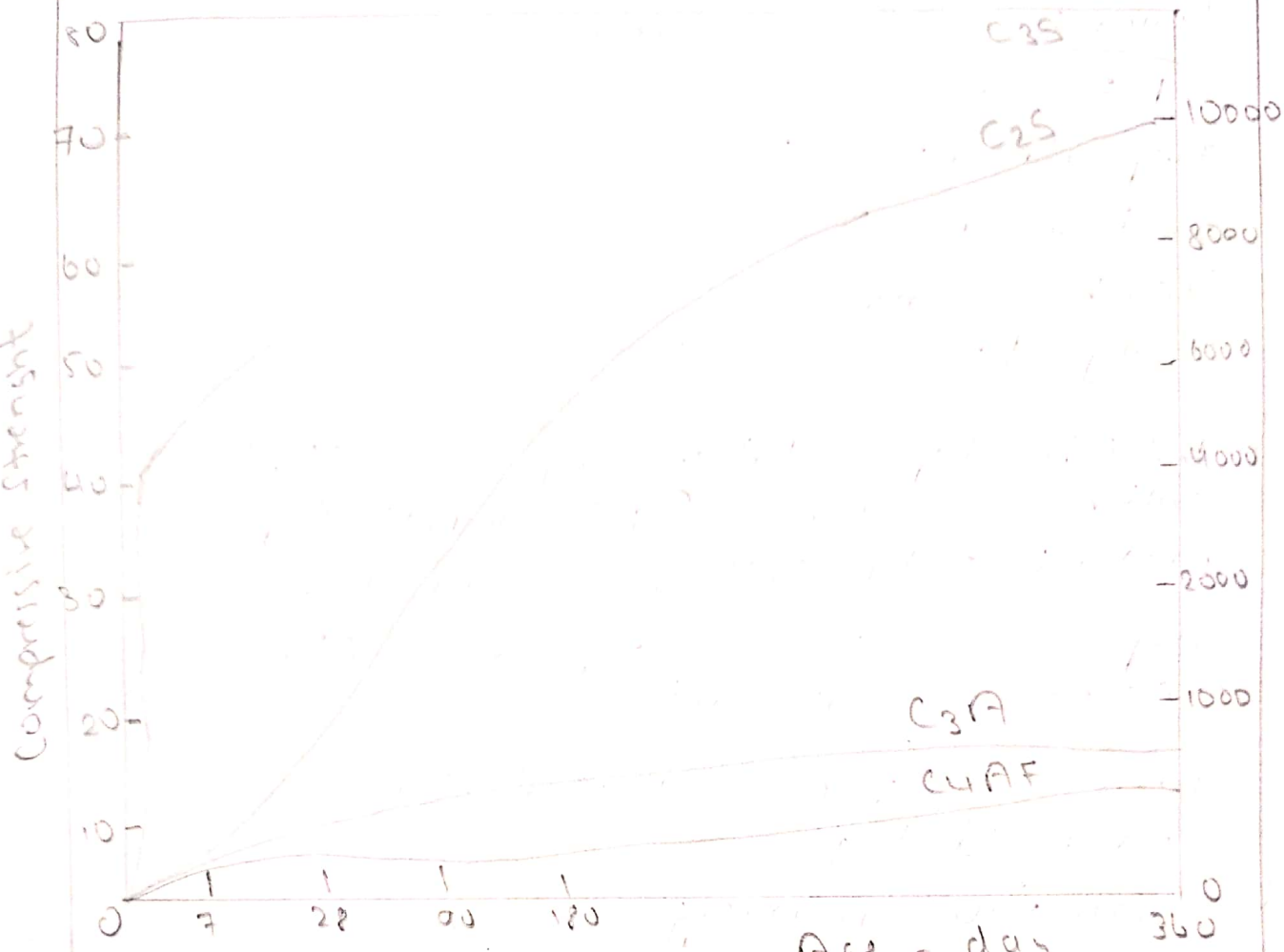
Gypsum is used to prevent flash setting in cement.

False setting of concrete can be prevented by.

(i) Continious mixing
(ii) Reworking

It may not be noticed on jobs supplied by truck mixers or with central mixed concrete that is agitated during delivery to the site.

Q.2) Draw a graph showing the strenght development of pure compounds of cement?



Development of strenght of pure compound

Q3) Why Type III cement is Rapid Hardening and Type IV Low heat producing? Draw a graph showing the development of heat of hydration of different cement types?

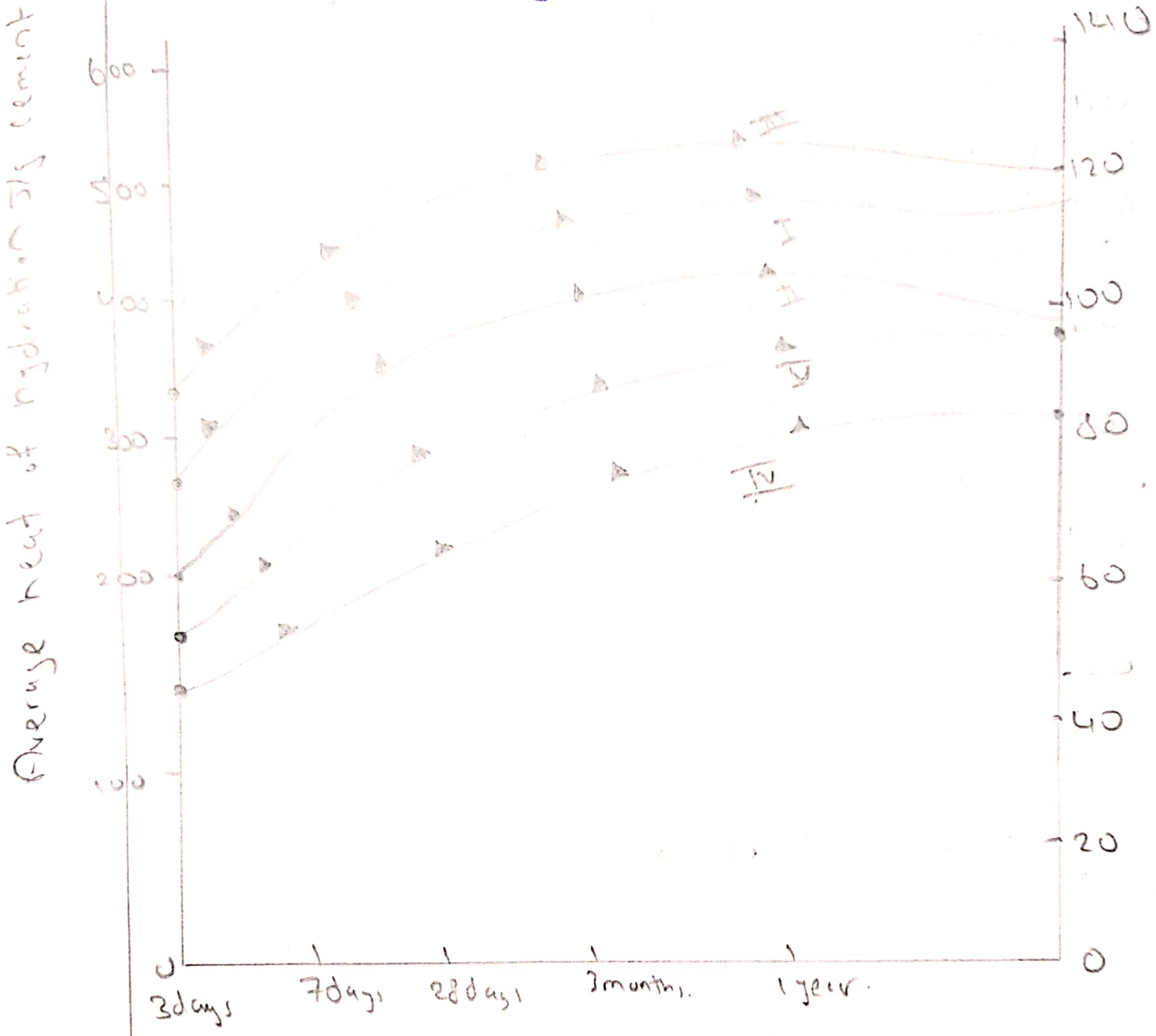
Type III :-

(i) Almost identical to Type I
(ii) It has a lesser curning time
(iii) Contains higher amount of C_3S.

Type IV

(i) Achieved by reducing the percentage of C_3A in cement.

(ii) It's lower final and intial strenght as compared to Type 1



Development of heat of hydration of hydration of different cement types (graph)

Q4) What is the effect of compaction on entrapped air of concrete? What will be the effect on strenght if concrete

is not compacted sufficently? Explain with graph?

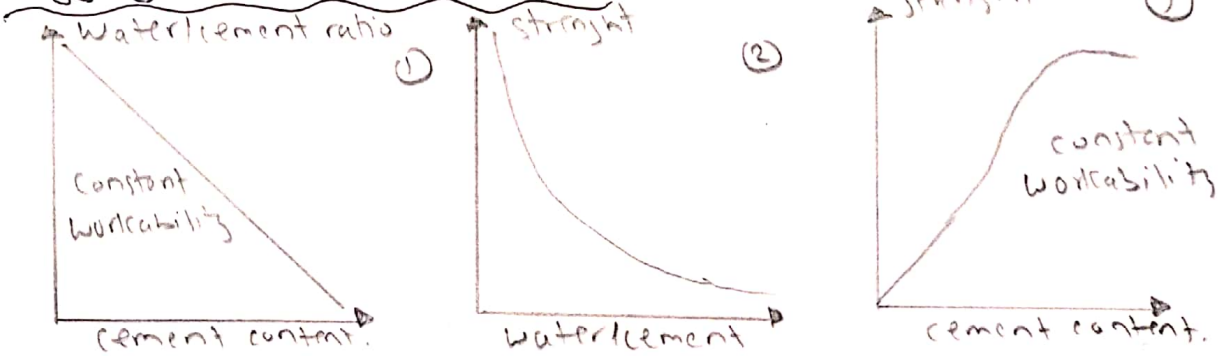
(i) That increased compaction will reduce the amount of air entrained. Because concrete is compacted the air bubbles escapes through the surface or it is destructed.

(ii) It is estimated that 50% of air entrainment is lost after compaction for 2 ½ mint.

Effect on strenght.

(i) Water / cement Ratio.

(ii) Aggregate / cement ratio.



Q5) Why is the percentage of gypsm added to cement limited only to 5%?

(i) It helps to control setting.
(ii) Drying shirkage properties.
(iii) Strenght development.

That's why it is limited only to 5%.

Q6) What is the effect of following on the bond strenght of concrete?

(i) Shape of aggregate
(ii) Size of aggregate
(iii) Texture of aggregate.
(iv) Bleeding.

(i) Shape of aggregate

A smooth surface can improve workability, yet a rougher surface generates a stronger bond.

(ii) Size of aggregate

With increase in maximum aggregate size used in concrete, the compressive strenght & tensile decrease

(iii) Texture aggregate:

It can be either smooth or rough. a smooth surface can improve workability yet rough surface makes strong bond.

(iv) Bleeding:

It increase finishy time, Produces laitance at the surface decrease strenght water resistance & cause poor bond).

Q7) What is the effect of following on workability of concrete.

(i) Porosity and absorption:-
Water cement ratio & nence. workability concrete as well the bond between the cement. it also effect the bond between it. and also durability of concrete

(ii) Air entrainig agent:-
It's purpose of is to increase the durability of the harden concrete. especially in climates subject to freeze it's second reason is too increase workability of concrete.

(iii) Course aggregate to fine aggregate ratio:-
It influence the porosity of RCCP. and the Relationship between compressive strenght & tensile strenght. and it increase cement 9% to 12%

(iv) Grading of aggregate.:-
It determine the average grain size of the aggregate. before they use in construction applied in both fine and coarse aggregate

(Q8) what is the effect of fineness of cement on the following?
(i) Strenght of concrete
The strenght of the concrete depends on the finess of cement more the fine cement more will be the strenght used in mixture of concrete.

(ii) Rate of heat evolution during hydration:-
It is impurtant with regard to mass concrete where cooling can lead to cracking after a large temperature rise

(iii) Heat hydration :-
When water and cement react so the heat is generated. it is most influenced by the propotion of C_3S C_4C_3A. in the cement.

(iv) Workability of concrete.
It is the property of freshly mixed concrete which determines the ease & homogenity with which it can be mixed or placed. increase in water cement ratio increase the workability of concrete.

Q4) Steps can be taken during transportation and placement of concrete to prevent segration of concrete.?

1) The concrete mix should be properly designed with opitmum quantity of water.
2) Transpot the concrete mix correctly. Choose the shortest route for transport fromlarge heights
3) Do not allow concrete to flow.
4) Use the vibrator correctly and never use the vibrator to spread a heap.
5) If any segration is observed in concrete remixing should be done soon to make it homogeneous again..