

(1)

Name:- Tahir Hussain

Subject:- Concrete

I. D.:- 7449

Student sign:- Tah Hussain.

Semester:- 12th

Instructor:- Engr- Usama Ali

Q NO: 1:-

Calcium sulphate sources, such as gypsum, are added intentionally to portland cement to regulate early hydration reactions to prevent flash setting, improve strength development, & reduce drying shrinkage, sulphate and aluminates are also present in supplementary cementitious materials and admixtures or if the inadequate amounts of gypsum are added to cement, flash set can occur and rapid development of rigidity in.

Q No:- 9:

Concrete placement is important process in the construction that determine the success of the structure and its life.

Technical and environmental condition are taken into strict consideration while placing the concrete.

The concrete is transported, pumped, vibrated, matured & cured.

Methods of concrete transportation are motor pans, wheel barrow or hand cart, bucket and Ropeway. Truss mixer & Dumper Belt Conveyor etc.

Q No 5:-

Gypsum is often added to portland cement early hardening at flash setting, allowing a longer working time. Gypsum slows down the setting time of cement so that cement is adequately hardened. its called setting of concrete.

(3)

Q No 7:-

i):- Porosity & Absorption:-

Some pores and absorptive porosity and absorption of aggregate will affect the water, cement ratio.

Porosity of aggregate will also affect durability. Porosity of normal rock vary from 0 to 50%. Measuring the increase in weight of an oven dry sample when immersed in water for 24 hours.

ii) Grading of Aggregate:-

Aggregate comprises about 55% of volume of mortar and 85% volume of mass concrete. Mortar contains aggregate size of 4-75 mm and concrete contains aggregate up to maximum size of 150 mm.

Thus it is not surprising that way the particle of aggregates fit together in mix.

(4)

iii):- Air Entraining Agent:-

Air is a entraining agent of pore-forming agents called compounds that entrain microscopic air bubbles in cement ~~position~~ composition, which then harden into concrete having microscopic air voids.

iv):- Coarse aggregate to fine aggregate ratio:-

There is an optimum coarse to fine aggregate ratio, of RCCP. increasing cement from 9% to 12% has significant effect on the properties of RCCP. Coarse to fine aggregate ratio influence the quality of RCCP.

(5)

Q No 6:-

i):- Shape of aggregate:-

The shape of aggregate is an important characteristic since it affects the workability of concrete.

ii):- Size of aggregate:-

The largest maximum size of aggregate particles to handle under a given set of conditions should be used. 80mm maximum size.

iii):- Texture of aggregate:-

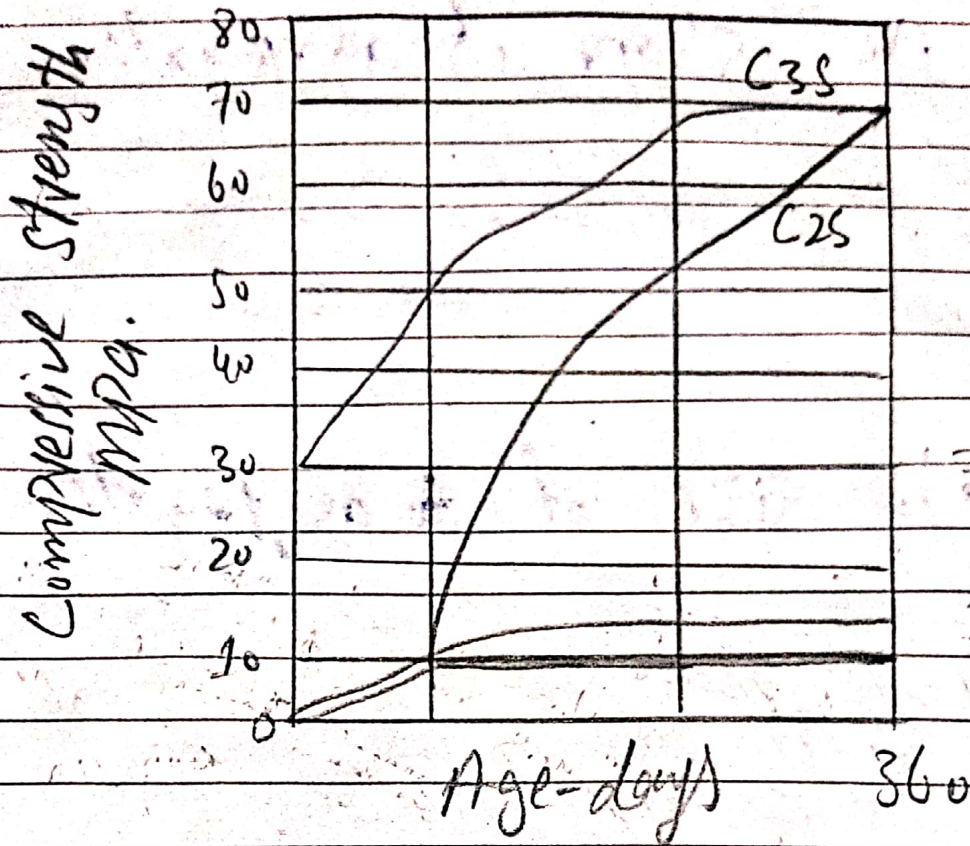
Texture of aggregate is property of surface the measure of which depends upon the relative degree to which particle surface are polished or dull.

iv):- Bleeding:-

Bleeding in fresh concrete is refers to the process where free water in the mix is pushed to surface.

(6)

Q No 2:-



Q No 3:-

Type III :-

Strength (Rapid, Hardening...) Highly early

Ground more finally, may have slightly more C35.

Applications:- Rapid construction, cold weather concretions.

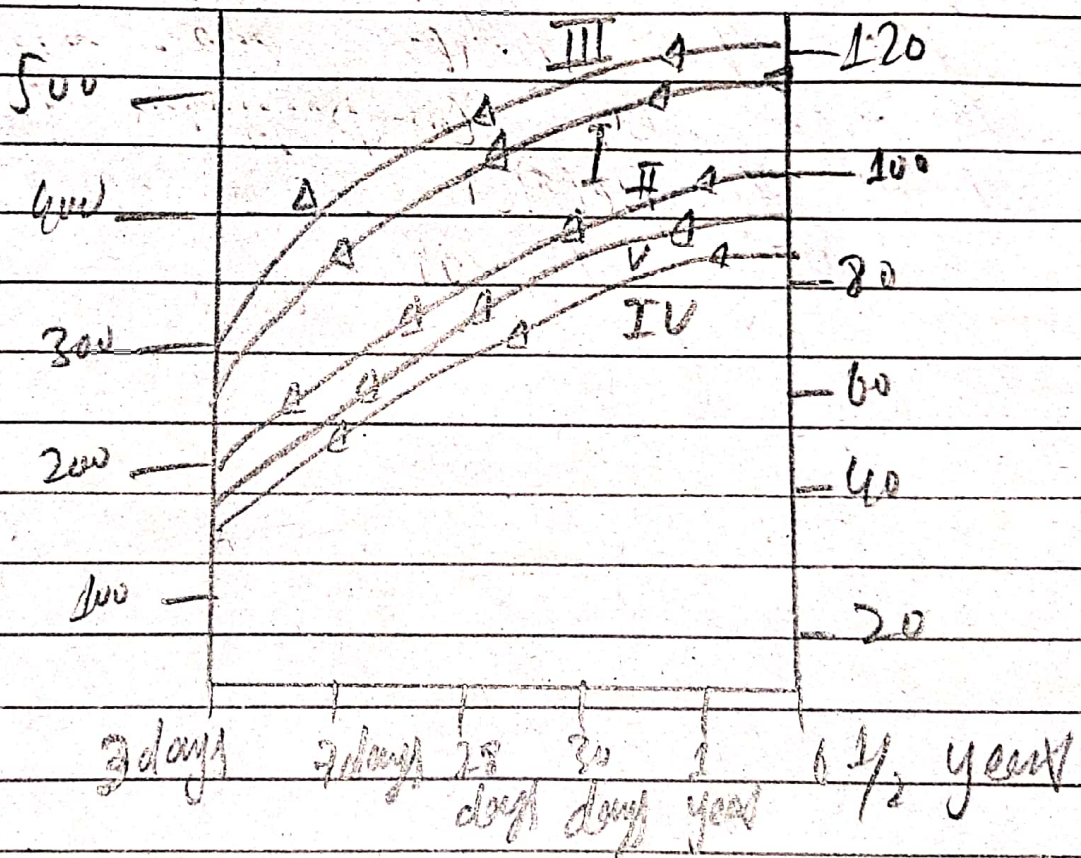
(7)

Type IV :-
(Low heat of hydration
(slow reaction)).

Low content of C₃S (25%)
and C₃A.

Massive structure such as dams
now are.

Average heat of hydration
- J/gam of cement.



8

Q No 4 :-

Air is present and its bubbles can be seen by naked eyes when the concrete is ready. When we use concrete for some thing like we make a cylinder when we pull the cylinder from concrete the air bubbles and air are entrapped in concrete the cylinder is not like that when the air is removed by compaction. So that's why compaction of concrete is very important.

(9)

Q No 8:-

i):- Strength of concrete:-

The 28-days compressive strength of concrete with or without entrained air, increases with an increase in cement fineness.

ii):- Rate of heat evolution during hydration:-

It has an important bearing on the rate of hydration and hence the rate of gain of strength.

iii):- Total heat of hydration:-

Finer cement offers a greater surface area of hydration, and hence faster the development of strength.