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Q01 part A Ans.

Retempering of concrete:

When water is added to a stiffened concrete or partially set fresh concrete in order to bring it back to the desired consistency or workability, then it is called a retempering of concrete.

The one and only reason for retempering of concrete is to regain the lost workability of fresh concrete to make it usable. The reason behind the workability loss is the delay between mixing of concrete ingredients and placing of concrete on actual site.

Always remember that retempering of concrete should be allowed only if the stiffened concrete could be used

on work without any harm.

- Always add a small quantity of extra cement balance the water-cement ratio of concrete.
- In some cases, contract language for "entrained air content" has been and found to be within specification, but the air content of the retempered concrete.

Qo1
B The rate of rotation is about 2 to 6 revolutions per minute (r.p.m) in the transit mixed type, the mixing is done in the truck during transit or even partly at the delivery site. use for some years and were discarded in favour of more costly but more effective rotating drum type agitator trucks an ordinary chassis over which is mounted a long horizontal or inclined steel drum. which contains the concrete.

Standard Crush Strengths are very difficult to perform and reproduce due to excessive cracking of the samples. it has been proposed that the reason for the cracking is the rapied release of the confining pressure during the tests, which may not. while this claim may appear valid, this study used samples Cured both under 3000 psi confining pressure and under. Most conventional cement systems do not allow for high strenght development and extended working time like those seen.

Results indicate that, using membrane curing compounds, an efficiency of 80-90% can be achieved as compared to conventional water curing.

Q2 part c

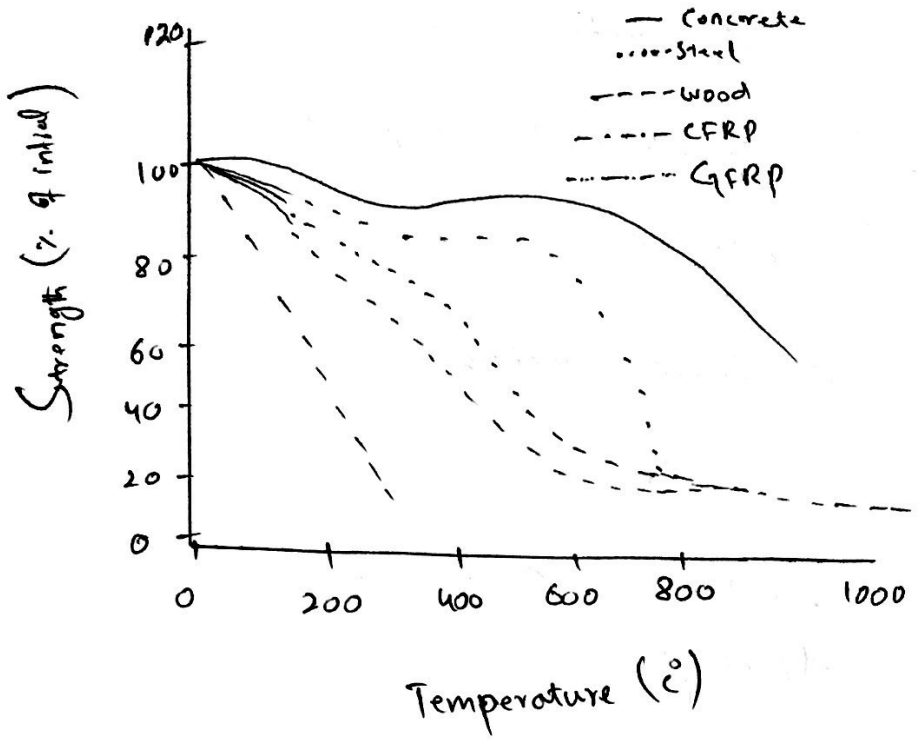
(4)

Strength retrogression is defined as a change in the hydration products that are formed when cement is exposed to high temperature (>110°C / 230°F). it can be described as a decline of cement strength at elevated temperature where decreased strength is observed with increasing time.

Q3 part A

Endurance;

(also related to sufferance resilience, constitution, Fortitude, and hardiness) is the ability of an organism to exert itself and remain active for a long period of time, as well as its ability to resist, withstand, recover from, and have immunity to trauma, wounds, or fatigue.



Q3 Part B

Dental attrition is caused by tooth to contact forming acquired wear facets upon pristine enamal whereas Erosion, and is caused by food and foreign body contact (e.g. tooth brushing) That may obliterate attrition wear patterns.

Q3 part c

Without reinforcement many concrete structures and building would not be. grids, plates, steel tendons, fibers, or other material to increase its tensile strength.

⇒ beam reinforced Concrete.

⇒ Reinforced Concrete diagram.

⇒ Column reinforced Concrete.

⇒ reinforced Concrete. drawing.

Q4 Creep:

In materials Science, Creep (sometimes called Cold flow) is the tendancy of a solid material to more slowly or deform permanetly under the influence of persistent mechanical Stresses. it can occur as a result of long-term exposure to high levels of stress that are still below the yield strength of the materials.

Factors affecting of Creep:

The factors that effect creep of concrete are similar to the factors effecting Shrinkage. which are the following-

- Water - Cement Ratio:- The ratio of Creep is increased with increasing water cement ratio.
- Humidity:- it is influenced by humidity and drying condition of the atomsphere.
- Age of concrete.
- Aggregate.
- Admixtures.

Two terms are Sometimes used interchangeably although they are really different. Creep is a increase in plastic strain under constant Stress. Stress relaxation is a decrease in Stress under Constant Strain. Creep is an increased tendency toward more Strain and plastic deformation with no change in Stress.

Q5

if the volume reduction occurs before the concrete hardens, it is called plastic shrinkage. The volume reduction that occurs primarily due to moisture lost after the concrete has hardened is known as drying shrinkage. it can be significant in concrete with a very low water - cementitious materials ratio.

on the first drying out an appreciable amount of the total shrinkage is irreversible but after several cycles of wetting and drying plastic cracking is due to settlement of the concrete in the formwork.

Q6
a)

The Concrete Structures which are exposed to marine envirroment may deteiorate due to the result of combined effects of chemical action of Seawater constituents on cement hydration products, alkali - aggregate expansion (when reactive aggregate are present) crystallization pressure of salts within Concrete if one Fac.

The frost resistance property of the rubberized concrete in Seawater less rate of rubberized concrete with the increasing of Freeze - Thaw cycle time in Sea water.

(Q8)

Sol:-

Fine aggregate of dry bulk vol for 50mm with 2.60.

Average compressive strength

where my Roll no is

73 → 8 (7 + 3 + 15) = 25Mpa

$f_m = 25 + 1.65 \times 4$

$f_m = 106.6$

Now 25 Mpa concrete

$f_m = 25 + 6.9 = 31.9$ Mpa.

where W/C ratio for 25 Mpa is 0.80

Slump value is 50mm and maxi size of aggregate is 25

Maximum W. Ratio = 180

entraped air 1.5

$\frac{180}{0.6} = 300$

$$C.A = \frac{0.76 \times 1600}{1.216\ kg/m^3}$$

W. water = 180

W. of cement = 300

C.A = 1216

Now 2375 (180 + 300 + 1216)

= 679 kg/m3

Absolute volume

$$F.A = (1000 - 697) \times 10^3$$

$$= 303 \times 10^3$$

W. of Fine = $303 \times 2.65 = 803$ kg/m

Cement = 300 kg/m3

F.A = 803 kg/m3

C.A = 1216 kg/m3

Water = 180 kg/m3

2499 kg/m3

Now

Cement	Fine Aggregate	C.Aggregate	Water
300	803/300	1216/300	180/300
	= 2.677	4.05	0.6

Cement	F.A	C.A	Water
50	50 x 2.677	50 x 4.05	50 x 0.6
	133.85 kg	= 202.5 kg	30 liter

F.A have 2% moisture

$\frac{2}{100} \times 803 = 16.06 \text{ kg/m}^3$

Present observation of C.A

Where is - 1%

$\frac{1}{100} \times 1216 = 12.16$

W. of. Coarse Feild condition

1216 − 12.16

1203.84 kg/m³

Now

water 16.08 by F.A

and 12.16 by C.A.

Therefore 16.06 - 12.16

3.91 kg

So

180 - 3.91 $\Rightarrow$ 176.11 kg/m³

176.11 $\simeq$ 176 kg/m³

Cement = 300

F.A = 819

C.A = 1203.84

Water = 176

= 2468.84