Name: Satyam Singh Sattavan Roll no: - 19065082 ASSIGNMENT-I

> (E-333 -x-x-

Design for M25

 $5ck = 31.6 \text{ N/mm}^2$, water cement ratio = 0.49 entrapped air = 0.01 m³, cement used = 0.00 H³

CA10: CA20 = 35: 65 --- fox 50 to 100 mm slump (Non-Pumpable)

45:55 - — for 125 to 175 mm slump (Pumpable)

Based on trial, Super plasticizer reduce water content by

9 Pumpable concrete reduce coarse aggregate Volume by 10%.

Table: Consumption of Material per m3

Slumb Slumb	Water (1)	Cement (Ag)	FA (sand)	CA(10)	(A (20)
50 to 100mm	191.6	391-02	660	410	765
125 to 175 mm	208.3	10.3 425 10 G	737	456	559
uith super plasticizes	160.4	327.35	827	511	627

Table	:	Ratio	by	weight
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190	15082
100	10-02

	and the state of t				
Slump ->	Watex	Cement	FA(Sand)	GA(10)	(A(20)
50 to 100mm	0.49	dankirahira umung ketranin rammalihan asau.	1.69	1.05	1.96
125 to 175mm	0.49	: The array	1.73	1.07	1.31
125 to 175 mm with super plasticizer	0.49	andy	2:53	1.56	1.92

Table: Ratio by volume

Material Slump >	water	Cement	FA(Sand)	CA(10)	(A(no)
50 to 100mm	0.637	teranon y	1.26	0.86	1.52
125 to 175 mm	0.637	7 12 GO	1-29	0.87	1.01
125 to 175mm with super plasticizer	0.637	hal thing	1.88	1.28	1-49

Design for M35

fix= 43.25 N/mm^2 , water cement ratio = 0.39 entrapped giz= 0.01 m^3 , cement used = 0.0643

(A(10): (A(20) = 35:45 - - for 50 to 100/5 lump (Non-Pumpable)

> = 45:55 --- for 125 to 175 mm slump (Pumpable)

Based on trial, super plasticizer reduce water content by 23%.

, Pumpable concrete reduce coarse aggregate volume by upto 10%.

Table: Consumption of Material per m3

Material Slump	Water (l)	Cement Lkg)	FA (sand) (lag)	CA(10) (kg)	CA(20) (hg)
50 to 100mm	191.6	Hal	594	403	750
125 to 175 mm	208.3	534	662	445	545
125 to 175mm with super plasticizer	160.4	411 /	757	508	623
- OIO 41		Commist (60100	main	-1 (c. fo)

toble: Ratio by weight

	i mar luna	(1,1)				
	Material Slump	Water of	Cement	FA(sand)	(A(10)	CA(20)
	50 to 100mm	0.39	iggibilition	1-21	0.82	1.53 0 1001
A COLUMN TO SERVICE A COLU	125 to 175 mm	whise	1.	1.24	0.83	1.02
Sand and and and and and	125 to 175 mm with suber plasticizer	0.39	mule V	1.84	1.24	1-52

Table: Ratio by volume

Slump ->	Water	Cement	FA (Sand)	(A(10)	CA(20)	
50 to 100mm	0.507	11 2 11	0.90	0.67	1.18	
125 to 175 mm	0.507		0.92	0.68	0.79	
125 to 175 mm with suber blasticizer	0.507	126.0	1.37	1.01	1.18	

Design for M45

 $fch = 53.25 \text{ N/mm}^2$, water cement ratio = 0.33 entrapped aix = 0.01 m³, Cement used = 0PC 43

CA 10: CA 20 = 35:65 - for 50 to 10 cmm slump (Non-Pumpable)

> = 45:55 _ __ for 125 to 175mm slump (Pumpable)

Based on trial, super plasticizer reduce water content

aggregate volume by upto 10%.

Table: Consumption of Material perm3

Slump Slump	Water (l)	Cement (Ag)	FA (Sand)	(A(10) (hg)	(A(20) (Ag)		
50 to 100mm	191.6	581	546	390	727		
125 to 175 mm	208.3	631	612	428	526		
125 to 175 mm with suber plasticizer	160.4	486	711	497	610		

Table: Ratio by weight

Idbio.						
Material Slumby	Wotes	Cement	FA (Sand)	(A (10)	(A(20)	
50 to 100mm	0.33		0.94	0.67	1-25	
125 to 175 mm	0.33		0.97	0.68	0.83	
125 to 175 mm with suber plasticizer	0.33	1 .	1.46	1.02	1.26	

Table: Ratio by volume

10010 - 100110						
Slumb Slumb	Water	Cement	FA (Sand)	CA(10)	CA(20)	
50 to 100 mm	0.429	1	0.70	0.55	0.97	
125 to 175mm	0.429	1	0.72	0.56	0.64	
125 to 175 mm with super blasticizer	0.429		1.08	0.83	0.98	

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