STRUCTURE:			ADMIN BU	ILDING		
ITEM :			S5			
Longer clear span		=		500	00 mm	
Sorter clear span		=		400	00 mm	
•	ļ	+				
Thickness of Slab		=		5!	5 mm	
THICKIESS OF GIAD						
Total UDL.		=		1.4	Ton/m2	
Support Condition		=		One St	nort Edge	
	ļ	+				
A. DESIGN FORCES	<u> </u>					
Longer clear span				5000	<mm; m=""></mm;>	5.00
Sorter clear span		†		4000	<mm; m=""></mm;>	4.00
					,	
Assumed thickness of sl		(By trial	& error till OK for various	55 mm	<mm; m=""></mm;>	0.05
Clear cover to main reinf				30	mm	
Maximum diameter of ba	ır			10	mm	
Facor of safety	<u> </u>	Reinf		1.5	mm	
minimum slab thkness				110	mm	
Permissible Mu/bd2				2.76		
			Not OK, Lesser than m	nin. as per ten	der.	
			K, From max. Mu/bd2 conside			
The least effective depth	in shorter /		OK from deflection considera = 55-30 -10/2 =	tions as cnec	<pre><mm; cm=""></mm;></pre>	2.0
The least effective depth	III SHORET /	loriger	= 30 30 TG/2 =	20	Cilini, Oiliz	2.0
Total design UDL				1.40	t/m ²	
			Say	1.40	t/m ²	
					VIII	
Longer effective span	L _Y		= 5000+20 =	5020	<mm; m=""></mm;>	5.02
Sorter effective span	L _x		= 4000+20 =	4020	<mm; m=""></mm;>	4.02
Conton concentro opani	_x	L _y /L _x	= 5020/4020 =	1.25	3,	
		Ly/ Lx	- 3020/4020 -	1.20		
	<u> </u>				<mm: m=""></mm:>	4.02
Shorter of the two spans	(for use in	hending mome	nt calculations)	4020		
Shorter of the two spans	(for use in	bending mome	nt calculations)	4020	<mm; m=""></mm;>	4.02
				4020	Cinini, ini>	4.02
Refering IS-456, Table-	22, P91	CASE 2	One Short Edge			4.02
	22, P91			1.12	tm	4.02
Refering IS-456, Table- -ve support moment at	22, P91	CASE 2	One Short Edge			4.02
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid	22, P91	CASE 2	One Short Edge			4.02
Refering IS-456, Table- -ve support moment at continuous edge across long span	22, P91 -M _y	CASE 2 0.050	One Short Edge = 0.05*1.4*4.02^2 =	1.12	tm	4.02
Refering IS-456, Tableve support moment at continuous edge across long span -ve moment at mid span across long span	22, P91 -M _y +M _y	CASE 2 0.050 0.038	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 =	1.12 0.85	tm	4.02
Refering IS-456, Tableve support moment at continuous edge across long span -ve moment at mid span across long span -ve support moment at	22, P91 -M _y	CASE 2 0.050	One Short Edge = 0.05*1.4*4.02^2 =	1.12	tm	4.02
Refering IS-456, Tableve support moment at continuous edge across long span -ve moment at mid span across long span -ve support moment at continuous edge across	22, P91 -M _y +M _y	CASE 2 0.050 0.038	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 =	1.12 0.85	tm	4.0.
Refering IS-456, Tableve support moment at continuous edge across long span -ve moment at mid span across long span -ve support moment at	22, P91 -M _y +M _y	CASE 2 0.050 0.038	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 =	1.12 0.85	tm	4.02
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span	22, P91 -M _y +M _y -M _x	CASE 2 0.050 0.038	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 =	1.12 0.85 0.84	tm tm	4.02
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid	22, P91 -M _y +M _y -M _x	CASE 2 0.050 0.038	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 =	1.12 0.85 0.84	tm tm	4.02
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span	22, P91 -M _y +M _y -M _x +Mx	CASE 2 0.050 0.038	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 =	1.12 0.85 0.84	tm tm	4.02
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span B. REINFORCEMENTS	22, P91 -M _y +M _y -M _x +Mx	CASE 2 0.050 0.038 0.037	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 = = 0.028*1.4*4.02^2 =	0.85 0.84 0.63	tm tm tm	4.02
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span -ve moment at mid span across short span -ve Mu/bd2 at support across across short span -ve Mu/bd2 at support across short span	22, P91 -M _y +M _y -M _x +Mx	CASE 2 0.050 0.038 0.037 0.028	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 = = 0.028*1.4*4.02^2 = = 0.028*1.4*4.02^2 =	0.85 0.84 0.63	tm tm tm N/mm²	4.0.
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span -ve Murbala at support across short across short span -ve Murbala at support across short span -ve Murbala at support across short span	22, P91 -M _y +M _y -M _x +Mx	0.050 0.038 0.037 0.028 = 1.4	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 = = 0.028*1.4*4.02^2 = = 0.028*1.4*4.02^2 = 5*1.12*10000/20^2 = 5*0.85*10000/20^2 =	0.85 0.84 0.63 42.00 31.82	tm tm tm tm N/mm² N/mm²	4.0.
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span +ve Moment at mid span across short span -ve Mu/bd2 at support across short span -ve Mu/bd2 at support across short span	22, P91 -My +My -Mx +Mx ross long across cross short	0.050 0.038 0.037 0.028 = 1 = 1 = 1	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 = = 0.028*1.4*4.02^2 = = 0.028*1.4*4.02^2 = 5*1.12*10000/20^2 = 5*0.85*10000/20^2 = 5*0.84*10000/20^2 =	0.85 0.84 0.63 42.00 31.82 31.39	tm tm tm tm N/mm² N/mm² N/mm²	4.0.
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span -ve Murbala at support across short across short span -ve Murbala at support across short span -ve Murbala at support across short span	22, P91 -My +My -Mx +Mx ross long across cross short	0.050 0.038 0.037 0.028 = 1 = 1 = 1	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 = = 0.028*1.4*4.02^2 = = 0.028*1.4*4.02^2 = 5*1.12*10000/20^2 = 5*0.85*10000/20^2 =	0.85 0.84 0.63 42.00 31.82	tm tm tm tm N/mm² N/mm²	4.0.
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span +ve Moment at mid span across short span -ve Mu/bd2 at support across short span -ve Mu/bd2 at mid span -ve Mu/bd2 at mid span	22, P91 -My +My -Mx +Mx ross long across cross short	0.050 0.038 0.037 0.028 = 1 = 1 = 1	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 = = 0.028*1.4*4.02^2 = = 0.028*1.4*4.02^2 = 5*1.12*10000/20^2 = 5*0.85*10000/20^2 = 5*0.84*10000/20^2 = 5*0.63*10000/20^2 =	1.12 0.85 0.84 0.63 42.00 31.82 31.39 23.76	tm tm tm tm N/mm² N/mm² N/mm² N/mm²	4.0
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span +ve moment at mid span across short span -ve Mu/bd2 at support across with the span across short span -ve Mu/bd2 at support across short span -ve Mu/bd2 at support across short span -ve Mu/bd2 at mid span	22, P91 -My +My -Mx +Mx ross long across cross short across	0.050 0.038 0.037 0.028 = 1.4 = 1.4 = 1.4	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 = = 0.028*1.4*4.02^2 = = 0.028*1.4*4.02^2 = 5*1.12*10000/20^2 = 5*0.85*10000/20^2 = 5*0.63*10000/20^2 = Max. of (42:23.76)	0.85 0.84 0.63 42.00 31.82 31.39	tm tm tm tm N/mm² N/mm² N/mm²	4.0
Refering IS-456, Tableve support moment at continuous edge across long span +ve moment at mid span across long span -ve support moment at continuous edge across short span +ve moment at mid span across short span +ve moment at mid span across short span -ve Mu/bd2 at support across with the span across short span -ve Mu/bd2 at support across with the span across short span -ve Mu/bd2 at mid span	22, P91 -My +My -Mx +Mx ross long across cross short across	0.050 0.038 0.037 0.028 = 1.4 = 1.4 = 1.4	One Short Edge = 0.05*1.4*4.02^2 = = 0.038*1.4*4.02^2 = = 0.037*1.4*4.02^2 = = 0.028*1.4*4.02^2 = = 0.028*1.4*4.02^2 = 5*1.12*10000/20^2 = 5*0.85*10000/20^2 = 5*0.63*10000/20^2 = Max. of (42:23.76)	1.12 0.85 0.84 0.63 42.00 31.82 31.39 23.76	tm tm tm tm N/mm² N/mm² N/mm² N/mm²	4.02

		l	Reinf as per Table-2,Pg- 48,SP-16				
	Reqd. reinf	M _u /bd ²	<u>p</u> ,xd/10				
	For -ve moment i.e. top reinf. across long span	42.00	0.943	= 0.943*2/10 =	1.89	cm ² /m	
	For +ve moment i.e. bottom reinf. across long span	31.82	0.943	= 0.943*2/10 =	1.89	cm ² /m	
	For -ve moment i.e. top reinf. across short span	31.39	0.943	= 0.943*2/10 =	1.89	cm²/m	
	For +ve moment i.e. bottom reinf. across short span	23.76	0.943	= 0.943*2/10 =	1.89	cm ² /m	
	Main Reinforcements		anaaina				
	At top across long span	Ф 8	spacing 250	= pi/4*(8/10)^2*1000/250 =	2.01	cm ² /m	1.006%
	At bottom across long span	8	250	= pi/4*(8/10)^2*1000/250 =	2.01	cm ² /m	1.006%
	At top across short span	8	250	= pi/4*(8/10)^2*1000/250 =	2.01	cm ² /m	1.006%
	At bottom across short	8	250	= pi/4*(8/10)^2*1000/250 =	2.01	cm ² /m	1.006%
—	span				Max.	% steel =	1.006%
	Max. permissible spacing	3xd or	60 300	(As per Cl. 26.3.3; Pg. 46; IS:4		, , , , , , , , , , , , , , , , , , , ,	
	Least of the two		60				
—	Max. provided spacing		250 Not OK				
	Distribution Reinforcen	nent	NOLOK				
	Min. reinf. in each direction		Cl. 26.5.2.1; Po		0.04	2	
	0.1 Provide	2 %	300	= 0.0012*2*100 = = pi/4*(8/10)^2*1000/300 =	0.24 1.68	cm ² /m	
—	Max. permissible spacing	5xd	100			cm ² /m	
	Least of the two	or	450 100	(As pe	er Cl. 26.3.3; Po T	j. 46; IS:456)	
	Max. provided spacing		300				
			Not OK				
	C. DEFLECTION CHEC		(As per (<u> </u> Cl. 23.2.1; Pg. 37; IS:456)			
	remissible span to be	טוו ומווט	(As per c	Cantilever	7		
_				Simply supported	20		
	fs = 0.58*Ast Reqd/Ast Pro			Continuous	26 272.5		
	Multiplication factor corre	enonding to]				
			setable convices	etrace of 1 006% etaal from	0.0		
	Modified applicable ratio			stress of 1.006% steel from = 0.91*26 =	0.9 23.55		
	Modified applicable ratio Ac	assuming 'I		= 0.91*26 =	23.55 200.00		
		assuming 'I	Discontinuous'	= 0.91*26 = = 4000/20 =	23.55 200.00		
	Ac	assuming 'I	Discontinuous'	= 0.91*26 = = 4000/20 = Not OK from deflection c	23.55 200.00		
	Ac	assuming 'I	Discontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c	23.55 200.00 onsiderations.		
	D. SKETCH	assuming 'I	Discontinuous'	= 0.91*26 = = 4000/20 = Not OK from deflection c	23.55 200.00 onsiderations.		
	Ac	assuming 'I	Discontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c	23.55 200.00 onsiderations. 250 c/c (T)	250 a(a /T)	
	D. SKETCH	assuming 'I	Discontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @	23.55 200.00 onsiderations. 250 c/c (T)	250 c/c (T)	
	D. SKETCH	assuming 'I	Discontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @ 0 0 0 0 0 0 0 0 0 0	23.55 200.00 onsiderations. 250 c/c (T)	250 c/c (T)	
	D. SKETCH	assuming 'I	Discontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @	23.55 200.00 onsiderations. 250 c/c (T)	250 c/c (T)	
	D. SKETCH	assuming 'I	Discontinuous' to 'Depth' ratio ® ® Poly 8 8 8 8 8 8 8 8 8 8 8 8 8	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @ 250 c/c (B)	23.55 200.00 onsiderations. 250 c/c (T)	250 c/c (T)	
	D. SKETCH	assuming 'I	Discontinuous' to 'Depth' ratio ® ® Poly 8 8 8 8 8 8 8 8 8 8 8 8 8	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @ 800	23.55 200.00 onsiderations. 250 c/c (T)	250 c/c (T)	
	D. SKETCH	assuming 'I	Biscontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @ 250 c/c (B)	23.55 200.00 onsiderations. 250 c/c (T)	250 c/c (T)	
	D. SKETCH Short Span = 4000	assuming 'I	Biscontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @ 250 c/c (B) PLAN	23.55 200.00 onsiderations. 250 c/c (T)		
	D. SKETCH Short Span = 4000	assuming 'I	Biscontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @ 250 c/c (B) PLAN	23.55 200.00 onsiderations. 250 c/c (T)	250 c/c (T)	
	D. SKETCH Short Span = 4000	assuming 'I	Biscontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @ 250 c/c (B) 250 c/c (B) PLAN 300 c/c	23.55 200.00 onsiderations. 250 c/c (T)		
	D. SKETCH Short Span = 4000	assuming 'I	Biscontinuous' to 'Depth' ratio	= 0.91*26 = = 4000/20 = Not OK from deflection c 8dia @ 250 c/c (B) PLAN	23.55 200.00 onsiderations. 250 c/c (T)		