'D' 1st year Roll no - 18 Page No. Date (016 Assignment & TO 4 Determine accin of each block shown in tig. DOM ma 300 CT 450 B To find Direction of motion: For body A is in rest Efy = 0 T - 150 = 0T=150 N for body B. 008 8- 12 Fy =08 - 17 1-008 -2To = 450=0 T=225N for body c , in sans AD 12 Fy = 00 13 15.51 CT-300=0 T = 300N . E. 1 (Body As will smove in appeared direction & body B & c will move in downward direction 300-1 = 518-5 - 5.277 + 3 to find kinematic relation? M W SFXS = T DEL - TSAP- STSB =TSCI= 0 olini op. 5. SADE 2SB+SC /. 755 = 20 21- WA += 20 VB + VC 0 -9A = 29B+9c

Sunta saly

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· (1)	Forabody A: EFY - May 20 , miles
_	T-150-150 ag = 0
	9.81
	T-15.29 ap = 150 - (1)
	$q_{A} = 150 - 7$
	For body B, 15.29
	Efyrt may = 0
	Mod 27 - 225 + 225 aB = 0
-	
-	27++22.93 apr = 225 07
	100 @C1B1=121251-12T
	0-112 46-22.93
	for body c, O = OZI - T
	EFYCT may = 0
	T-300 + 300 ac =0
14.	9-81 <u>A pood</u> 104
×.	T-30.589c=8300
	7-008 90 52 300-T M = 22 - 1 30.58
	an = 2018 + ac = 2 1/2000 001
	150 = T 2/225 = 125T \ . 200 = T
	$\frac{150-7}{15\cdot 29} = \frac{2(225-127)}{22\cdot 93} + \frac{300-7}{30\cdot 58}$
	. Noof = T
A 0.0	Harrib 12 (1150 -T) NEW 2 (225-27) 1.33 +
	nough of alary live 2 8 8 300-T
	300 -T = 598-5 - 5.32T + 300 -T
	5-13121T1 =1 598135 bails 67
	T = 3/1/2.5 N
×.	() => 112.5 +15.29 ap = 150
	17 25 - CIA = 2.45 m/s
	(2) => 2(112.5) + 22.93 98 = 225
	980 = 0
and the same	
and the second	

	Date
· Y	(3)=> 112.5 - 30.589 = 300 and
	7 + (12.02) macre 6.13 m/s.
	900-19 + (38.98) (38.000
	Sayber GF
2.	
	ackin of body 13 & tension in cord supporting
77:10	body A. coefficient of priction is 0.2.
	browner duction
	- เพาะกาก วริเกษทั้ง!
	5 × 2 = 00
	ATT DETS
	300N 2T 0
	3 200 A. A Wove (1)
	Q 40 = 450.2 F FAS
)
%	
7.	X = 36.86°.
- out	
30 (8)	
4.5	0=90 82.7=200 N
	(1) 40.86 Everly 22 = 4085.00 10
	300 CM 300 CD 27 A E FY = 0
(<u>()</u> ×	25 FY = 0 26.86 236.86 25 FY = 0 N+300 COS 36.86 = 0 N = 240.03
	11-12 - FE W.N
	10.51 = 0.2×240.03
	1/42711 an F = 48.006 N
	Body B movey up the plane then the
ş.	porces responsible for that
	27 = 2×200 (5 = AD
	2T = 400 N A

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	Now, force responsible for down the plane
	200 Cin (36:Xb) TF
	= 300 sin (36.86) + 48.006
	= 227.96 N
234	≥ 228 N
	228 < 400
	Body B moves up the plane & body & will
	moves downward.
	Kinematic relation:
	$\omega = F \times S$
	2TSB= TSA
	SA = 25B
	aA = 2aB
	(i) Body A:
	Efy + may =01
	T - 200 f 200 ap 20
	4:81 2001
	T+20.38 ap = 200
	38.36 - 18 - 18
	2) Body B: -300 Sin (36.86) + 2T - 48.006
228 < 400 Body B moves up the plane & b moves downward. Isinematic relation: \[\omega = FxS \\ 2TSB = TSA \\ SA = 2SB \\ \omega = 2GB \\ \omega = 2GB \\ \omega = 200 \\ T + 20.38 \omega = 200 \\ \om	2005: 121:01 + 2T-48.006
	- 300 8111 30 407
	- 30 · 58 UB = 0
	27-30.580B = 221.16
	(d) => -1 + 40° 760g = 20°
	27 + 81.5 248 - 10
	21 - 30. 58 98 172.04
	(12-10B = 112-01
	(2) =7 27 - 30 · 58 × 1· 53 - 2211 (8
	-
	MA 2 5 NO 6 M/S
lane.	

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.3.	Determine the accin of the bodies Sho	num in His
£1 }	If the coefficient of triction is o.	at all
Į.	contact sustace:	
•		
	- policie object that simulation	·
	B 300N 7	
	minim	
	4 = 0.2 1 T ma	
	200 And 101	
	38-38 - 3 10-8 Grand 12 - 36-86	
	P / 1 A Con	
. 0 :	3 1 1 3	
	28.25 For 300dy A 1,1	
-	10.05 200 - 4.12 - 1	
	1110T = 200N.	
	Σfy = 0 0= 173	
DEAD OUT	- 1812 18 001 > fyo = may 000 + T	24466
12.5	T-200 - 200 CIA = 0	51
	18.P GO.77 CA - 185.95 - (1).	700
	T- 20.38 QA = 20	0 (0)
	8 10 14 104	
	For Body Bing w	
7.3	-18-0-2-5000 - M C	
	200 T	F 4
	35.620 × 100 4 + Full /	
	(400 80 = 3 /v	
	Efy =0 Efx =0 ?	
1 = 08	12 ale N = 300 = 50003 - 811-T = 6 M.N	
	N=300 18.1 T= 0.2 x 3	00
	18-101 - 30-15 - T = 60 N	
	1 P. (01) Ta+ 3300ag- 160 = 0	16
	9.81	
	TA - 30.58 CIB = 60 -	- (2)
_	TI=479.72 , 9A = 13.72 W	<i>ς</i> ?
A CONTRACTOR OF THE		

	Date
· · · · · · · · · · · · · · · · · · ·	Two bodies Prifige are sepondated by a spring.
	Their motion down the incline is resisted by a
	force P=200 N. U=0.3 under A & O. Hunder B.
	Determine the force under Spring.
	В
	your woo www. 60°
	1200 1 100 W S.O = 100
	pm 4
	for body and
	100 st 100 05 36 66 .
	100° 1 20 N = 400 80\$ 36.86 =0
	N- 400 805 36.86 =0
	N = 320.04
	f= 4.N = 0.3 x 320.04
	F= 96.701 N.
	Σfx=0)· ν(3)
	T +200 - 96.01 - 400 8in 36.86 - 400 90 =0
	0 = AD 005 = 005 - 1
	T-40.77 aA = 135.95 ()
()	For body B.
	60° 20 10 Efy = 0/208 103
	N-600 Cos 36.86=0
239,244	N = 480.06
239	f = 0.1 × 480.06
	f=48.00 N.
	Σfx =015 0= 1/15
	11.11 a -TI-48 - 600 az - 600 8in 36.86=0
	9.81 008 -11
	1, 00 = 1 -T - 61.19B = 407.91
	- Tot-GIOI6 as = -407.91
359-41	. 18.13
- 4	02 = 10=25818-28 N
	1 1 51.51 = 11 CIA = #15 133 misse
-	

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-	
	Defermine the verocity of block Batter bolck &
	has moved 6 m from rest. use D'Alembert princi
	Wg = 800 N
	B
	3
	4 34
	Soin:
	FBD of given assembly is
1	10001.
N.	800
, ,	and the second s
	20 21
	Z .
	0=tan- (3/4)= 36.86°
0	12.527 AUSP. 100 . T.C.
	Consider block B at rest
	Σfx =0 15, 825 - 30 18 03 - 18
	T-800 Sin 53.13°=0
	T = 640 N
البالج	with the value of Tresultant borce acting on block A.
	2T-1000 Sin 36.86 = 0
	2(640) -1000 8in 36.86 =0
	T = 680.13 NM
	Block A will moves up the plane and block B
31.73	will move down the plane . To determine triction
	dosce.
	FORM EBD Of A. MAG. 15
	Zfy=0 011 2x (+ 1)2
	NA - 100 0 cos 36.86° = 0
	NA = 800H (1000) 0 - 200
	FA = UNA = 0.2 × 800
	FA = 160N
*	

have aligned as a		Page No. Date
A THURS	Form FBD of B	1,10,1
Maria de desputa	004 2 Fy 2012 8 40 10 10 10 10 10	
	NB - 800 COS53.13°=0	
	NB -480 N	
	·FB = al/B = 0.2 x 480	
	FB = 96N	779
	To obtain Kinematic relation	
	CUDA + WDB =0	
	2TSA - TSB=0	71. 2
-	25A = SB 1 20 10 10	0 118''
E	2UA = VB	*/
	2 CIA = CIB - 1	L
	To apply Kinematic equation	n for block
ii	A	8_1_
	EFx - ma 20	
- Grand - (2T - 1000 Sin 36.86 -160 = 10	000/9.87.10A
	2T -101.93aA = 759.8	<i>5</i> 6
	from eqn (1) and	
	2T-50.96 aB = 759.86	(2)
	For block B	16, JOY 1 1 1
	Efr= mag	
ATR V V	800 Sin 53.13° - 96 -T	= 800/9,81 93
	T+ 81.54 aB=54	41 (3)
	Solving eq 10 83 , we	
	T = 419 N 30	
8 20.00	+ 1000 male 1953 m/520	J 7130 EL
	Determing verocity of bu	ock B after block A
	land marked 6m	13 15 76 3
	SA = 6 cm	5 4 .68.21
	SB = 2x6 = 12 cm	
	8 0 - 121.30 2000	(0) (13
	VB=0 (rest)	B=1-53 m/s?.
	00 × 5 10 1 01	1 1 1 1
	ं भूते	
	,	

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	Using . V22 - 402 + 200 . Sp
	Using, UB2 = UB2 + 29B. SB
	= 0+2×1.53×17
	VB = 6.05 M/s.
(2)	Determine the acel of block A & B from given
	A A
	600 3 3 400
	[1200] T 800
	> 1 27 T 800
	B
	N N
	1200
	0 = x = tan = 3/4 = = 0.25 = 18
	0 = x = 36.86 0 0 1/1 1 1 1 1 1 1
*0	ZFx =0 51 - 25 2 2 2
	27 = 1200
	T = 600N1 - 1000100 - 1
(4)	with this waive of Tresultant toxe acting on bloc
	Α
	12 = 5 Fx =0 . " (11) / - 1+
	T-600 Sin 36.86 =0 0051 1 13 -
,	600 7600 Sin 36, 86 =0
	CE. CH = 240,08 N-51
	DI'. BEEK A will A move upwards.
	from FBD of Block A I' > (3) 1'p>
	EFYPEO : ypra.nex · 1 () 35
	NA - 600 COS 36.86 ED NA = (180.06 N
	FA = 21.NA = 0.25 × 480.06
	FA = 120.015N
	As resultant force is greater than frictional torce
	motion of brock will take rejultant.
	K-VIII V

,	Pago No. Dato
	R = EFx. =0
	T-800 Sin 36.86 =0
	600 - 800 Sin 36.86 =0
	= 120.11 N
V-3	Hence block c'evil moves upward
	From FBD of C
	Nc -800(0536.86 =0/1)
	Fc = cc1. Nc = 160.02
2 - J*g	Toobtain Kinematic relation.
	WDA T. WDB TO
6.	TOIA +- (2TaB) =0
	- 2ag
	By Condition of equilibrium
	Efx - co/g A aprox
	T-600 sin 36.86 - 120.15 = 600 ap
	9.81
	T-61.16 0A = 479.93
and in	1 122.32 9A = 479.93 - 2
	Now,
	Efx - 6/9 aB =0
	-2T + 1200 = 1200/9.81 × 98
	27 + 122.32 = 1200 CIB
	27 - 1200 CB = -122.32
	7-600aB=-61.16-3
	egh (2) × 2
	@=> T-244.64 aB = 479.93 - (1)
*	Solving 3 & Q
	T = 538.84 N
	9B = 019996m = 1m
411 .	9A = 1.999m = 2m
	And the state of t

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Dato	~		

(3)	The pulley assembly shown in tig! weight 150N
	& has centroidal radius of gyration of 2m
	The block are attached to the assembly by
	cord wrapped around the pulleys. Determine the
16	accin of an each body & tenton in each cord.
	(R) w = 150N
	K = 2 m
	R1=3m
12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R2 = 1.5m
	100000
	Common (A) (A) (B) (A) (A)
	150N 200N
1	Soin - 100 113 + 1011 122 101 10
2	= 6 W=150N 001 - , 1"
į į	0 R 10 3 m 10 2
	$L = m_{K}^{2} = 150 \times 2^{2} = 61.22 \text{ kgm}^{2}$
1 1 2	
1 1 - 2 1	10 10 10 = 612.2 gm2 1 100 brows 10
C /	Block B. moves down downward with
g 1/1	displacement SR, while the block a movey -
the land of the state of	up would with displacement .SA.
stills 47	- for kinematic relation is using -
	SA = VA = 30 - 30 - 1
· · · · · · · · · · · · · · · · · · ·	UA = 3W => QA = 3~
	SB= YO => SB=1.50
	UB = 1.3 cm => QB = 1.3 cm
	from FBO of block A, we get,
	Frx = maa
	TI - 100 - W CIA = 0
	200
	$\frac{T_1 - 100 = 100 \times 30}{9.8}$
	T1 = 30.61 x + 100 - 1
venus venus	

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1-1 4111	from FBD, of block B, we get
· · · · · · · · · · · · · · · · · · ·	ZFX = mag
1 1 1	-T2 +200 = w/g ap =0
1.15%	T2 + 200 = 200/9.8 X1.5x
1 1 6	-T2 +200 = 200/9.81 x1.5 x
	T2 = 200-30.61x - 2
	from FBD of Compound pulley, we get
	EMO = LX
	$(T_2 \times 1.5) - (T_1 \times 3) = L \times$
,	1.5x (200-300.16x)-3x (30.6]+100)=6
	$\alpha = 0$, we get,
	an = 3x = 3x 0 = 0 m/s2
•	an also = 1:5x0 = 0 m/s2
	putting this value in ear (182) we get
	T, = 100 + 30-61 & = 100N
	T2 = 200 - 30.61 & = 200N.
	र अक्षेत्र । इस के किल प्रकृति । विकास से किल के किल के किल किल के
(ú)	Two weights soon & 400N are connected by
1	a thread and move along a rough homizontal
rd.	plane under the action of 400 N applied to 800N
<u> </u>	weight as snown in tig. The coefficient of
	friction been sliding surface of weights and plane
	is 0.3 using D-Alembert principle accin of block
	2 tension in string.
	military and the state of the s
	400 800 N
	Draw FBD OF block A & B
	1 400 ma 1 800
)	ma < T > T > T > 400N
	FA FB NB
1	NA SEX SEL SOLLAR
	From FBD Of block A
	() 001+ Efg=0

	Pago No.
·	Date
	-400 + NA =0
	NA = 400 N
-	FA = 4NA = 0.3×400 = 120 N
	Ztx =0 - (By law of kniction)
-	T-FA-Max =0
	T-FD-400/4.81 9A = 0
-	T-FA-40-77 9A =0
	T-40.7700 = 120
	1000, t-40.
,	From FBD Of block B
	5 Fy = 0
-	-800 + NB = 0
	NB =800N
	FB = MNB = 0.3 x 800 = 240
	ΣFχ =0
	-T-800/9.81 aB-FB+600 =0
	-T-81.549B-240+600=0
	-T-81.549B=-360 -2
	substracting eqn (1) tron(1)
-	(81.54 + 40.77) a = 360 - 240
	122.31 a =120
	a = 0.98 m/s2