	Λ
	ASSIGNMENT 5
	2 John 1
()	920 124
	fundian CHECK_EQUIVALENCE (KB1,KB2)
	function CHECK TRUE (SI) return true or false
	symbols = a list of proposition symbols in KB
	return check-model (31, Symbols, []);
	Rohum TT_CHECK_ALL (KBI) KB2; 39mbols [7]
	function check-model (SI, Symbols, model)
	( Symbol) then The many The ma
_	if PL-True? (SI, model) then seturn true;
	Else (Symbols) then sols
	return false, (A) ! sur! 19
	else dolpham (SBR) madalob sels
	P = FIRST (symbols); rest = REST (symbols)
	OCHUL TOTAL CIMECKI TOUG
	return check-model (SI, rest, modely {P=true})
_	or check-model (SI, rest, model UTP-faises)
	if Pl. True ? (KB2, model)
	1 sold pulled
	elso do else saturn timo
-	PE First (symbols); seater Real symbols)
	CEMBER ILLERECK, ALL (KB), KB2 AEST FUN 1 10 5 110 1
-	TT_ Check Det (KB) hed Extend (4 Palso model

Problem 2: function CHECK-EQUIVALENCE (KBI, KB2) returning or false Symbols e a list of proposition symbols in KBISKER Setun TT\_ CHECK-ALL (KBI, KB2, symbols, []) Rundian check model (SI, Symbols, model) function TT-CHECK-ALL (KBI, KB2, Symbols, Model) actum true make if PL-True? (S), model) then return if Empty ( (Symbols) then if PL-True? (KBI, model) then if PL-True! (KBZ, model) odiny2) 7239 -> Jes Schun true 7297 -> 9 else THE WORD WITH MANGE selver treck stappennish Rest modelli ? P or check model (SI, rest, megels TPif PL-True? (KB2, model) return false; else return True elso do P = First (symbols); sest = Rest (symbols) return TT\_CRECK\_ALL (KBI, KB2, rest, Extend (P, true, mode)) and TT\_CHECK-ALL (KBI, KB2, rest, Extend (P, false, model))

	Problem 3
(a)	KB & According to the defention of entailment knowledge base KB entails sentence & if and only if & is true in all worlds where KB is true.
	knowledge base kB entails sentence & if and only
	ir & is true in all worlds where kB is true.
	T
	In this case, KB = SI, because when
	KB is true SI is also true.
	In the truth table, sow 1, kB is true where SI is tome
	and in now 3, kB is true à 31 is also true.
(b)	From the information given, 7 (KB) does not entail 7 (SI), because in the shuth table sow2, when
	7(SI), because in the truth table sows, when
	7 KB is true, 7SI is False, similarly in row4,
	when 7 kB is true, 751 is false. Therefore 7(KB)
	does not entail 7(SI).

Parblem 4: Convert the following to CNF. function CHECK-XOR-VALID (SI, SZ) return the or by Part a: A => (NOT (C or B)) symbols & a hit of proposition symbols in si and (on: 7A V (7 (corB)) Return TT CHECK ALL (BT NOOF) LOW AFFORD (TAVTC) A (TAVTB) function IT exect Au (SI, SZ, Symbols, model ) Return to Acles. Part b: (NOT (CORB)) - A 7 (CVB) => An (184) ! south 1971 (7C17B) = A 82 / Ser) 18 31 7(7C 17B) VA American else sature true AVBV 2 if PL-True? (52, model) sehun Below Isue PE- FIRST (Symbols); Lear E- REST (Symbol) salven IT CHECK ALL (SI, Se, Seal EXTENDE & Free mode

Parblem 4 Problem 5 and at privallel soft towns or Pole function CHECK-XOR-VALID (SI, SZ) return time or false Symbols = a list of proposition symbols in SI and SZ ((8 40 0) T) V AT : "108 return TT\_CHECK\_ALL (SI, S2, Symbols, ModeLCJ) (BTV AT) A (STV AT) function TT\_CHECK-ALL(SI, SZ, symbols, model) return the or false. if Empty? (Symbols) then (200) then

if PL-Frue? (k\$1, model) then if PL\_True? (S2, model) rehun False (8TADT) else return true; AVSV ig PL-True? (S2, motel) return flater True else return them false PE FIRST (symbols); rest = Rest (symbols) return TI CHECK ALL (SI, SZ, Rest, EXTEND(P, true, model)) and TT\_CHECK\_ ALL (SI, SZ, REST, EXTEND(P, gabe, model))

Problem 60: dood 1 (b' 20 my 100 maldos) \* dog ( Shadow) as he signed so in libe to -- It is a fuedicate, which returns there for shadow is dog. - Shadow is a constant standard in (x) shoot \* gives (John, Shadow, Mary) gives lo a fredicate starbard a (4) slave - It returns true for john gaines shadow to Mary. - John, shadow, Merry is constant \* male (shadow) 1 dog (shadow) => gives (Mary, smart phone, John) - male, dog, gives is a predicate - male (shadow) means that shadow is male, -dog(shadow) means that shadow is dog - gives (mary, smartphone, John) means mary gaires smartphone to john. - Shadow, John, mary, smartphone - constant female (shadow) A dog(shadow) => gimes (Mary, laptop, John) - female, dog, gives is friedicate. - female (shadow) means that shadow is female - da (shadow) means shadow is deg.

- gives (mary, laptop, John) means mary gives laptop to yohn. shadow, mary, laptop, john is constant

\*  $\forall x \exists y : gives (John, x, y) \land people(x) \land dog(y)$ 1 male(y). - For all n as people to, n is variable, - There exist y dog, y is variable. - people (x) is predreate, n is people. - dog(y) is predicate, it returns true for y is dog - male (y) is obsedicate, it setums the for y is dog. - John is constant gives (mary, laptop john) - gives is friedreate, it means that many - gane laptop to john. - Mary, John, laptop is constant. - given (many smartphone, John) means many goines - shadow, John mary, smartphone constant fermale (shadow) A dog( shadow) = ) gives (Many, laptor Permale , does gives to wedicate. female (shadow) wears that shadow is female

	Problem 7
1)	Symbole: taller John-Bill and apparations
	taller-John-Bill
	taller - John John taller - Bill - John taller - Bill - Bill - (118)
ill- Jeh	It is opinen for every x, teller (x, Bill) => tall (x), 80 x can be any person, x = Person!
	taller - Person Bill
	taller_Bill_Person taller_Person_Person
	tall-Person 11:8 ndet - vellet
2)	taller ( John, Bill)
	John is than Bill
	Propositional version: taller-John-Bill
	For every x, taller (x, Bill) => tall (x)
	For every x, taller (x, Bill) => tall (x)  Rose Considering x as Person,
	taller_Person_Bill => tall_Person
	7 (taller_Person_Bill) V tall-Person