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	Assignment No. 2	
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.>		
	Name: Tejas Balaso Jadhar.	
·>	Roll No.: 24	
>	(lass: B.E. IT	-
•>	Sem = VII	
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	Teins	
· · · · · · · · · · · · · · · · · · ·	Sub :- IS-LAB	1.5
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Q	1	Salar II Carlo Salar Charles
9	ph.	Solve the following with forward chaining
		or backward oborning or resolution (any
		one) use predicate Togic as language of
		Knowledge representation clearly specify
		the facts 8 interace rule used.
	1	Example 1:
	T	Every child sees some with No witch
-		has both a black cat & a pointed
		hot.
	27	Every witch is good or bad.
	ارس	Every child who sees any good with
		gets condy.
	4)	Every witch that is bad has a black
- 1		
	51	Every witch that is seen by any child
-		has a pointed how
	2	
	6	Prove: every child gets cardy.
-0	>	
	1	A Facts into fol
] + xAY (child (x), witch (y) -> sees(x,y))
		~ 7y (witch (,) -> has (y, black cout) 1 has
		(y.pointed hat)
		2) 7 (witch (x) -> good (x) Vbad (y))
		3) Fx ((see s (x, y) -> (witch (x) -> good (y))
		-> get (x, (andy)
		4] Ey ((witch (y) -> bad (y)) -> has (y-> black
		hat))
		5 (sees (x, y) -> has (y, pointed hat)
		* / /
	11	

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2	Example:
	D Every body or girl is a child.
	3 Every child gets a doll or a train or
	a lump of a coal.
	3) No body gets any doll.
	a Every child who is bad gets any
	lump of coal.
	3 No child gets a train.
	6) Prove Ram is bod.
	I Ram gets lump of coal.
	ा नामदीपेन भागतना ।।
	1) $\forall x (boy(x) or girl(x) -> child(x))$
	2) ty (child (y) > gets (y, doll) or gets (y, train)
	or gets (y, coal)
-	3 + w (boy (w) -> 1 gets (w, dol1)
	3 for all = (child (z) & bad (z)) gets
	(z, coal))
	Yy child (y) -> 1 gets (y-hain)
	5) Child (ram) -> gets (ram, coal)
	To prove (child (ram) - bad (room))
	CNF clauses
	1) !boy (x) or child(x)
	girl (x) or child (x)
	1) ! child (y) or gets (y, doll) or
	gets (x, train) or gets (x, coal)
	37 ! boy (w) or ! gets (w, doll)
	5] ! child (z) or bad(z) or gets (z, coal)
	5 ! child (ram) -> gets (ram, coal) 61 bod (rom)
	DOM (SOM)

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	Resolution:
	4) ! child (2) or ! bod (2) or get (2,0001)
	B bad (ram)
	3 ! child (ram) or gets (ram, coal)
	sub
	7 ! child (ram) or gets (ram, coal)
	Substituting 2 by ram.
	8 (a) 1 boy (x) or child (x)
	boy (ram)
	9 (hild ram (substituting x by ram)
	7) child (ram) er gets (ram, coal)
	8 child (ram)
	3 Grets (ram, coal)
	2 6 child (y) (or gets (y, doll) or gets
	(y train) or gets (y, coal)
	8 child (ram)
	10) gets (ram, doll) or gets (ram, train) or
	gets (ram , coal)
	(substituting y by ram)
	19 Gets (ram, coal)
	10 Gets (ram, doll) or gets (ram, train) a
	gets (vam, (oal)
	1) gets (ram, doll) or gets (ram, coal)
	Jas (66 / 40))
	5 boy (ram)
	12] ! get (ram, doll) or gets (ram, train)
	1 gets (ram, doll) or gets (ram, train)
	12 ! gets (ram, doll)
	13) gets (ram, coal)

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		NO ENGLERGCERGCERGCERGCERGCERGCERGCERGCERGCERGC
		Hansa had Con)
		Hence, bad (ram) is proved.
a		
	2	Differendiate between STRIPS & ADL
	-	
	-	STRIPS larguage ADL
		? Only allow positive ? (an support both
		literals in the states positive & negative
		For eg: A valid sentence literals.
		I a second a
		1 2 1
		=> Intelligent 1 Beautiful expressed of =>
		Stupid 1-ugly
		3) STRIPS stand for) Stand for Action
		standard Resemen Insti- Description language
		Luke Problem solver
		> Makes use of closed > makes use of
		world assumption (i.e.) open world Assumption
		un mentioned literals (ie.) unmentioned
		are false. literals are unknown
		> We can find > We can find qualifies
		ground literals in goals variables in goal.
		For eg: Intelligent 1 for eg: 7xA+(PIX)
		Beautiful. A+(P2,x) is the
		goal of having PI & PZ
		in the same place
		in the example of
		blocks.
		> Goals are conjunctions > Goals may involve
		for eq: (Intelligent 1 conjuctions &
1	1	Beautiful)

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	disjunctions for eg:- (Intelligent 1 (Beautiful
	CE 11 1 CO 1121
	(Intelligent A (Beautiful
	1 Rich))
> Effects are conjunction	
Janes Got an arch	allowed; when P: E
	means E is an
	effect only if P is
61 X7	sufisfied.
THE STATE OF THE S	
> Does not support equ	ality:> Equality predicate
The second secon	(x=y) is build in
No of the leading time	>> Support for types
Per dypes.	for eg: The
	variable P: person
	\times
	A- / A/
	/ 2 \ /
	201
The control of	
	<u> </u>

K.G.C.E. Page No.: Karjat - Raigad Date: \bigcirc P(B) P(E) 6.00 0.002 P(A) 0.95 0-94 1 0-29 0-001 (alls P(T) P(m) 0.09 0.70 0.05 0.0

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ROCEROCKACENACENACENACENACENACENACENACENACENACEN	VOCEVOCEVOCEVOCEVOCE	Date:
that Burglany & earthquake affect the probability of the alarms going off. Cheader John & Many call depends anly on alorn They do not perceive any burglaries directly they do not notice minor Pastiquake & they do not center before calling. I may listening to loud music & John confusing phone singing to sound of alarm can be read from network any implicitly as unretainty. associated to calling at work. The probability actually summarize potentially infinit sets of circum stences. The alarm might full to go off due do high humidity, power failure, alead battery, cut wines, a donor mouse shut inside the bell ele I John & many might fail to call & pepat & alarm because they are out to lunch, an vacation, temperally defi- passing bellicoples ete The condition probability tables in alw dives postability for values of soundard	KGCEKGCEKGCEKGCE	RGCERGCERGCERGCERGCERGCERGCERGCERGCERGCE
that Burglany & earthquake affect the probability of the alarms going off. Cheader John & Many call depends anly on alorn They do not perceive any burglaries directly they do not notice minor Pastiquake & they do not center before calling. I may listening to loud music & John confusing phone singing to sound of alarm can be read from network any implicitly as unretainty. associated to calling at work. The probability actually summarize potentially infinit sets of circum stences. The alarm might full to go off due do high humidity, power failure, alead battery, cut wines, a donor mouse shut inside the bell ele I John & many might fail to call & pepat & alarm because they are out to lunch, an vacation, temperally defi- passing bellicoples ete The condition probability tables in alw dives postability for values of soundard		O The topology of the network indicales
probability of the alarms going off. Depends Tohn & Many cold depends anly on. alarm They do not perceive any burglaries directly they do not notice miner contents along the loud music a John confusing phone singing to sound of alarm con be read from network only implicitly as uncertainty. associated to calling at work. The probability actually summarize potentially infinite sets of circum sterces. The alarm might full to go off due to high humidity, power failure, dead ballery cut wires, a dead mouse stuck inside the belt set. John & many night feat to call & passing bellicopte est. The condition probability tables in always gives probability for values of sendom		
coly on alorn They do not percise any burglaries directly they do not notice minor Coothquake & they do not confer before calling. I mosy listening to loud music & John confusing phone singing to sound of alorn con be read from network alorn implicitly as unestainly. associated to calling at work. The probability actually summonize potentially infinite sets of circum sternes. The alarm might full to go off due to high humidity, power failure, alead ballery cut wire, a dead mouse sheet inside the bell ele. John & many might fail to call & pepat & alarm because they are out to lunch, an vaccution, temperaily defi- passing helicoptes ete The condition probability tables in alw dives poolability for values of random		- Burglary & earthquake affect the
conly on alorn They do not perceive any bunglaries directly they do not notice minor Rashquaka & they do not confer before calling. I many listening to loud music & John confusing phone singing to sound of alarm can be read from network only implicitly as uncertainty. associated to calling at work. The probability actually summarize potentially infinite sets of circum stences. The alarm might full to go off due do high humidity, power failure, dead ballery cut wise, a dead nowe solute inside the bell ele John & many might fail to call & pepat & alarm because they are out do lunch, an vaccation, temperaily aleft. passing helfroptes ete The condition probability tables in alw aires asobability for values of sondom		probability or the alarms going off.
is They do not perceive any burglaries directly they do not netice minor carthquakes & they do not center before calling. I most listening to loud music & John confusing phone singing to sound of alarm can be read from network only implicitly as uncertainty. associated to calling at work. The probability actually summonize patentially infinite sets of circum stences. The alarm might full to go off due do high humidity, power failure, dead battery, cut wire, a dead mouse souch inside the belt set. John & many might fail to call & separt & alarm because they are out to lunch, an vacation, temperally defined passing bellioptes etc. The condition probability tables in n/w gives asobability for values of sandom) Wheather John & Mary cell depends
directly they do not notice minor Pasthquaka & they do not confer before calling. I mosy listening to loud music & John confusing phone singing to sound of alarm can be read from network only implicitly as uncertainty. associated to calling at work. The probability actually summarize potentially infinite sets of circum stences. The alarm might full to go off due to high humidity, power failure, dead battery cut wire, a dead maye stuck inside the belt ele I John & many might faul to coul & pepert & alarm because they are out to lunch, an vaccation, temperally defined passing helicoptes ete The condition probability tubles in n/w gives postability for values of soundon		
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before calling. I many listening to loud music & John confusing phone singing to sound of alarm can be read from network alarm can be read from network alarm can be read from network only implicitly as unretainly. associated to calling at work. The probability actually summarize potentially infinite sets of circum sterces. The alarm might full to go off due to high humidity, power failure, dead ballery cut wires, a dead mowe solute inside the bell ete John & many night fail to call & pepat & alarm because they are out to lunch, an vaccition, temperaily def. passing helfcoples ete The condition probability tables in now gives probability for values of sandom		directly they do not notice minor
Deposing to loud music of John confusing phone singing to sound of alarm can be read from network only implicitly as unretainty, associated to calling at work. The probability actually summarize potentially infinite sets of circum sterces. The alarm might full to go off due to high humidity, power failure, alead battery cut wires, a dead mouse solut inside the bell ele John & many might fail to call & post & alarm because they are out to lunch, an vacation, temperally def. passing helfroples ete The condition probability tables in No	-0	Cashquaka & they do not conter
confusing phone singing to sound of alarm can be read from network alarm can be read from network any implicitly as unretainty. associated to calling at work. The probability actually summarize potentially infinite sets of circum stences. The alarm might full to go off due to high humidity, power failure, alead halfery cut wires, a dead mouse solute inside the bell ete. John & many night faul to call & post & alarm because they are out to lunch, an vaccution, temperaily defined passing hellicoptes ete. The condition probability tables in NW gives probability for values of sandom		before calling.
alam can be read from network only implicitly as unretainty. associated to calling at work. The probability actually summorize potentially infinite sets of circum sterces. The alam might full to go off due to high humidity, power failure, dead battery, cut wires, a dead mouse stuck inside the bell ele John & many might fail to call & seport & alam because they are out to lunch, an vaccition, temperally defined passing hellippies ete The condition probability tables in n/w aires probability for values of rondom		> Irlary listening to loud music of John
associated to calling at work. The probability actually summarize potentially infinite sets of circum stences. The alarm might full to go off due to high huridity, power failure, alread ballery cut wire, a dead mouse stuck inside the bell ste John & many might feel to call & pepat & alarm because they are out to lunch, an vaccition, temperally defined passing helicoptes ete The condition probability tables in No		Condusing phone anging ton notwork
associated to calling at work. The probability actually summarize potentially infinite sets of circum stences. The alarm might full to go off due to high humidity, power failure, dead battery, cut wine, a dead mouse shut inside the bell ele I John & many might fail to call & separt & alarm because they are out to lunch, an vacation, temperally defined passing helicoptes etc. The condition probability tables in No		alam con se escapionity.
The probability actually summarize potentially infinite sets of circum stences. The alarm might full to go off due to high humidity, power failure, dead ballery cut wire, a dead mome shuck inside the bell ele John & many night feel to could & report & alarm because they are out to lunch, an vaccution, temperally defined passing hellicoptes ete The condition probability tables in n/w gives probability for values of readon		associated to calling at work.
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- The alarm might full to go off due do high humidity, power failure, alead ballery, cut wire, a dead move shuck inside the bell ele John & many night fail to call & separt & alarm because they are out to lunch, an vacentian, temperally def. passing hellitoples ete The condition probability tables in n/w gives probability for values of readom		notentrally infinite sets of circum sterces.
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inside the bell ele. 3 John & many might fail to call & separt & alarm because they are out to lunch, an vacation, temperally def. passing hellicoples ete 3 The condition probability tables in Nw aires probability for values of sending		high hymidity, power failure, alead
John & many might feel to call & separt & alarm because they are out to lunch, an vacation, temperally defined passing hellicoptes ete. The condition probability tables in Nw aires probability for values of sandom		balley, cut wise, a dead maye stuck
passing helicoples ete The condition probability tables in n/w aires probability for values of sandom		inside the bell ele
passing helicoples ete passing helicoples ete The condition probability tables in n/w aires probability for values of sandom		John & many might feel to cary &
passing helicoples etc. The condition probability tables in n/w gives probability for values of sondom		separt & alarm security of our
The condition probability tables in now		ballinale ete
gives probability for values of sendion		passing restruction probability tables in NW
vanishes depending node.		.) The condition for values of sondom
		gives possibles de reading node.

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	0 . 1
	> Each now must be sum sho I because
	entries represent explassive set of
	Cover for variable.
	> All variables are Boolean.
	> In general, a table for a Booleon
	variable with k porcely center's 2
	independently specific probabilities.
	> A variable with no parent has only
_	ore sow, representing prior probabilions,
	of each possible valve of the
	variable II silectual ander II
V	3 From entry in full joint probability
	distributed can be calculated from
	information in Bayessian heavork.
	> A grenenic entry in joint distributed is
	and little of a conjuction of parotemen
	oscionment to each pariable & (XI = NIN -
	A X = Xn) abbreviated of p (X1
	In The realise of this entry is P(x1,xn)=
	Ti=1, np (1, famuls (Xi)), where parents.
	S(Xi) denotes the specific value of the
	variables panely (xi)
	-P(jamaan NbANe)
	= P(jla) P(mla) P(alnbane) P(nb) e(ne)
	= 0.09 × 0.001 × 0.939 × 0.938
	= 0.000628
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(Mary)	ohn }
Calls	als)
(Farthquake)	
	1
(P) 1	Line
(Burglasy)	-lam)
॥ ज्ञानद्वीपन भारवताः॥	
19/2/////	
7.51	
	,