ammini College of Engineering

CS09 304 Discrete Computational Structures

Question Bank – Module I- Logical Connectives

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Topic	Question	Mark	Month &Year	Regulation
Logical Connecives	⌐(P∧Q) ⇔ ⌐P ∨ ⌐Q	5	2011	09
	Explain modus tollens	2	2010	09
	P∨Q⇔⌐(⌐P∧⌐Q)	5	2010	09
	Explain Contra positive	2	2011	09
	Check the validity of the following argument. "If the band could not play rock music or the refreshments were not delivered on time then the new year party would have been cancelled and Alice would have been angry. If the party is cancelled then the refunds would have to be made. No refunds were made.	5	2012	09
	Show that R v S follows logically from the premises C v D,(C v D)→⌐H, ⌐H→(A ∧ ⌐B) and (A ∧ ⌐B)→(R v S)	5	2012	09
	If the premises P,Q and R are inconsistent prove that ⌐ R is a conclusion from P and Q	5	2012	09
	Show that (R → ┐Q), R∨S, S→ ┐Q, P → Q and P are inconsistent.	5	2009	04
	Show that [(P ∧Q) ∨(P ∧ ┐Q) ∨ (┐P ∧ Q)] is equivalent to P∨Q.			
	Show that R→ S can be derived from the premises, P→ (Q→S), ⌐ R∨ P and Q	5	2010	04
	Show that the statement, Q ∨(P ∧┐Q) ∨(┐P ∧┐Q) is a tautology.	5	2009	04
	Construct the truth table for the statement P∨(Q∧R) ⇔ $(P \vee Q) \wedge (P \vee R)$	5	2008	04
	Show that P→(Q→R) ⇔ (P→Q)→(P→R)	7	2008	04
	Check whether the hypothesis "it is not sunny this afternoon and it is colder than yesterday". "We will go for swimming only if it is sunny", "If we do not go for swimming then we will go for a canoe trip". "If we take a canoe trip then we will be home by sunset". Lead to the conclusion that "We will be home by sunset".	5	2012	09
Predicate Calculus	Translate the following predicate calculus formula into an English sentence. ¡$\forall x[C(x) \vee \exists y C(y) \wedge F(x,y)]$. Here C(x) : x has a computer, F(x,y) : x and y are friends. The universe of x and y is the set of all students in your college.	5	2012	09

CNF & DNF	Explain conjunctive normal form	**2**	**2010**	**09**
	Show that any proposition e can be transformed into a CNF	**10**	**2011**	**09**
	Find the disjunctive normal form of the following $(P\wedge Q)\vee(\neg P\wedge Q)\vee(Q\wedge R)$	**10**	**2011**	**09**
	Show that any proposition e can be transformed into a DNF	**10**	**2011**	**09**
	Obtain conjunctive normal form of the following $(\neg P\rightarrow R)\wedge(Q\leftrightarrow R)$	**10**	**2010**	**09**
	Obtain the principal conjunctive normal form of the following $(\neg P\rightarrow R)\wedge(Q\leftrightarrow R)$	**5**	**2009**	**04**