

IITJ (2013-14), 3rd Year, II Sem.  
32002-Artificial Intelligence, Quiz#1

January 22, 2014

Duration: 30 Minutes

Roll No.....  
(Max Marks: 14)

1. Represent the following in predicate calculus wffs. (4)
  - (a) A computer program is intelligent if it can perform a task which, if performed by a human, requires intelligence.
  - (b) If  $y$  is ancestor of  $x$ , then  $y$  is either father, or mother of  $x$ , or their ancestor.
2. If  $\phi \models \psi$  then prove that  $\phi \cup \{A\} \models \psi$  for any formula  $A$ . (2)
3. How many *models* are there for the sentences  $(A \wedge B) \vee (B \wedge C)$ . (2)
4. Convert the following wff to clause form: (6)

$$\neg \forall x \{P(x) \Rightarrow \{\forall y [P(y) \Rightarrow P(f(x, y))] \wedge \neg \forall y [Q(x, y) \Rightarrow P(y)]\}\}$$