

AI Assignment.

① Determine whether the following formulae are consistent or inconsistent using tableau method.

(i)  $(P \wedge \neg Q) \wedge (\neg P \wedge Q)$

(ii)  $(P \vee Q) \wedge (\neg P \wedge \neg Q)$

(iii)  $(P \vee Q) \wedge (\neg P \vee \neg Q)$

② Determine using tableau method, whether the foll. sets of expressions are mutually inconsistent or consistent.

(i)  $P \rightarrow Q, Q \rightarrow R, R \rightarrow S, P \rightarrow S$

(ii)  $\neg P \vee Q, Q \wedge \neg R, R \rightarrow S, U \vee \neg S, P \wedge \neg U$

③ Find the resolvent of the following sets.

(i)  $\{P \vee Q, \neg P \vee \neg Q\}$

(ii)  $\{P \vee \neg Q, Q \vee R \vee S\}$

(iii)  $\{P \vee \neg Q, P \vee Q, \neg P\}$

④ Prove by resolution refutation.

(i)  $\{P \wedge Q, \neg P \vee R\} \models Q \vee R$

(ii)  $\{P, Q \rightarrow R, P \rightarrow R\} \models P \wedge R$