Department of Computer Science & Engineering
Mangalore Institute of Technology & Engineering, Mangalore

ASSIGNMENT 2

Semester: 7th | **Group:** 7CS3
Sub Code: 18CS71 | **Subject:** Artificial Intelligence and Machine Learning
Issue Date: 10th November 2022 | **Submission Due Date:** 15th November 2022
Max. Marks: 10 | **Examiner:** Dr. Sukhwinder Sharma

1. Consider the following set of well formed formulas in predicate logic:
   Man(Marcus)
   Pompeian(Marcus)
   $\forall x$: *Pompeian(x)* $\rightarrow$ *Roman(x)*
   Ruler(Caeser)
   $\forall x$: *Roman(x)* $\rightarrow$ *Loyalto(x,Caeser)* $\vee$ *hate(x,Caeser)*
   $\forall x$: $\exists y$ *Loyalto(x,y)*
   $\forall x$: $\forall y$ *Man(x)* $\wedge$ *Ruler(y)* $\wedge$ *tryassassinate(x,y)* $\rightarrow$ *Loyalto(x,y)*
   tryassassinate(Marcus,Caeser)
   Convert these into clause form and prove that *hate(Marcus,Caeser)* using resolution proof. (4)
2. State the algorithm to *Unify(L1,L2).* (2)
3. Consider the below given training examples which find malignant tumors from MRI scans:

Example	Shape	Size	Color	Surface	Thickness	Target Concept
1	Circular	Large	Light	Smooth	Thick	Malignant
2	Circular	Large	Light	Irregular	Thick	Malignant
3	Oval	Large	Dark	Smooth	Thin	Benign
4	Oval	Large	Light	Irregular	Thick	Malignant
5	Circular	Small	Light	Smooth	Thick	Benign

   Show the specific and general boundaries of the version space after applying candidate elimination algorithm. (Note: Malignant is +ve, Benign is –ve) (4)