AI Exam Questions

[Time: 6 hrs.]

[Total Marks: 100]

Natural Language Processing (NLP)   [Total Marks - 50]

The first and the most important step for any NLP related task is data preprocessing. For this question, we will try to implement a simple sentiment analysis movie review model. We will be using the first 10,000 reviews from **imdb dataset** for this task. Download the dataset and perform the following steps:

Sr. No	Question	Marks
1	Preprocess the text (i.e., the steps required prior to converting the sentence into a vector) using any library of your choice.	10
2	Given any sentence, perform vector semantics i.e., convert the given dataset into vectors using Bag of Words approach.	10
3	Train a simple classifier (using Scikit-learn e.g.: SVM) to perform sentiment analysis on the generated dataset.	10
4	Repeat the above process again but now using word2vector. (for any sentence, take average of the vector representation of all the tokens to get the vector representation)	10
5	Bonus: Mention the insights that you can derive from the movie reviews. (you are free to use any techniques)	10

Computer Vision (CV)   [Total Marks - 50]

Sr. No	Question	Marks
1	Based on the house dataset provided, build a model for image classification using any of the pre-trained models.	20
2	Pickup any 10 random images from the internet and plot the input image histograms for all the three channels.	10
3	Pickup any 5 random images from the internet and perform the following operations on them: a. Rotate the image to 90 degrees b. Flip the image c. Blur the image using any filter d. Resize the image to 50% of the original size e. Shift the image on X and Y axis by 100 pixels	10 [2x5]
4	Choose any video and process it by splitting the 3 channels and display all the 3 channels.	10