Question 1a

From my initial understanding of the problem and with my research on skin image processing in limited time, I have come up with certain possible solutions to quantify the wrinkles.

* As wrinkled images have sharp changes in pixel values, the first processing technique which strikes my mind is edge detection. We can perform edge detection on both the images and calculate the sum of all the pixel intensities, definitely the wrinkled image will have higher value due to more edges.
* Upon further research I found out about texture analysis. Gray level co-occurrence matrix is a method to analyze the texture of an image. It gives measure for the homogeneity, correlation and energy of the image. Calculation of the entropy of the image is also a good measure of the randomness of the image. Wrinkled one being more non- homogeneous it should reflect low value in homogeneity and high value in randomness.
* Histogram comparison can also be used to distinguish images but I have not implemented in the program.

Question 1.b

The program has been attached as separate file.

Question 2

In this case, we can make use of machine learning algorithms for supervised classification. Classifiers like Support vector machine, nearest neighbor, etc can give good classification results depending on the preprocessing of the data in hand.

Question 3

In this case as we are not aware of the class to which the data belongs to, we will have to make use of unsupervised classification. Classification techniques like random forest, neural networks and deep learning can give very good results but the sample set for training should be high for the classifier to perform well.