Task 4.1P

KNN

```
[[16  5  9]
 [ 0 26  4]
 [ 0  7 23]]
The number of correct prediction is 65
The total number of images is 90
The recognition accuracy for KNN is 72.22% for 5 nearest neighbours

[[15  5 10]
 [ 0 26  4]
 [ 0  7 23]]
The number of correct prediction is 64
The total number of images is 90
The recognition accuracy for KNN is 71.11% for 10 nearest neighbours

[[13  8  9]
 [ 0 26  4]
 [ 0  9 21]]
The number of correct prediction is 60
The total number of images is 90
The recognition accuracy for KNN is 66.67% for 15 nearest neighbours

[[13 10  7]
 [ 0 26  4]
 [ 0  8 22]]
The number of correct prediction is 61
The total number of images is 90
The recognition accuracy for KNN is 67.78% for 20 nearest neighbours

[[10 12  8]
 [ 0 27  3]
 [ 0  8 22]]
The number of correct prediction is 59
The total number of images is 90
The recognition accuracy for KNN is 65.56% for 25 nearest neighbours

[[ 9 14  7]
 [ 0 26  4]
 [ 0  9 21]]
The number of correct prediction is 56
The total number of images is 90
The recognition accuracy for KNN is 62.22% for 30 nearest neighbours
```

Accuracy is highest at for 5 nearest neighbours at 72.22%.

SVM

```
[[24  2  4]
 [ 0 22  8]
 [ 1  1 28]]
The number of correct prediction is 74
The total number of images is 90
The recognition accuracy for SVM is 82.22% for 10 C

[[25  2  3]
 [ 0 21  9]
 [ 1  2 27]]
The number of correct prediction is 73
The total number of images is 90
The recognition accuracy for SVM is 81.11% for 20 C

[[25  2  3]
 [ 0 23  7]
 [ 1  4 25]]
The number of correct prediction is 73
The total number of images is 90
The recognition accuracy for SVM is 81.11% for 30 C

[[25  2  3]
 [ 0 24  6]
 [ 1  5 24]]
The number of correct prediction is 73
The total number of images is 90
The recognition accuracy for SVM is 81.11% for 40 C


[[26  2  2]
 [ 0 24  6]
 [ 1  5 24]]
The number of correct prediction is 74
The total number of images is 90
The recognition accuracy for SVM is 82.22% for 50 C
```

Accuracy is highest at for 10 C or 50 C at 82.22%.

Adaboost

```
[[15 12  3]
 [ 4 13 13]
 [ 0  4 26]]
The number of correct prediction is 54
The total number of images is 90
The recognition accuracy for AdaBoost is 60.00% for 50 n_estimators
```

```
[[15 12  3]
 [ 4 13 13]
 [ 0  4 26]]
The number of correct prediction is 54
The total number of images is 90
The recognition accuracy for AdaBoost is 60.00% for 100 n_estimators
```

```
[[15 12  3]
 [ 4 13 13]
 [ 0  4 26]]
The number of correct prediction is 54
The total number of images is 90
The recognition accuracy for AdaBoost is 60.00% for 150 n_estimators
```

```
[[15 12  3]
 [ 4 13 13]
 [ 0  4 26]]
The number of correct prediction is 54
The total number of images is 90
The recognition accuracy for AdaBoost is 60.00% for 200 n_estimators
```

```
[[15 12  3]
 [ 4 13 13]
 [ 0  4 26]]
The number of correct prediction is 54
The total number of images is 90
The recognition accuracy for AdaBoost is 60.00% for 250 n_estimators
```

Accuracy is highest at 60% for all numbers of n_estimators which is due to the small test set.

The best classifier would be the SVM classifier at 82.22%