



B) Training Set Classification Report

| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 1 | 0.95 | 0.96 | 0.96 | 150 |
| 2 | 0.91 | 0.91 | 0.91 | 150 |
| 3 | 0.91 | 0.90 | 0.90 | 150 |
| 4 | 0.91 | 0.92 | 0.91 | 150 |
| 5 | 0.97 | 0.96 | 0.97 | 150 |
| accuracy | | | 0.93 | 750 |
| macro avg | 0.93 | 0.93 | 0.93 | 750 |
| weighted avg | 0.93 | 0.93 | 0.93 | 750 |

C) Training Set Confusion Matrix

| Predicted Label \ True Label | 0 | 1 | 2 | 3 | 4 |
|------------------------------|-----|-----|-----|-----|-----|
| 0 | 144 | 6 | 0 | 0 | 0 |
| 1 | 7 | 137 | 6 | 0 | 0 |
| 2 | 0 | 7 | 135 | 8 | 0 |
| 3 | 0 | 0 | 8 | 138 | 4 |
| 4 | 0 | 0 | 0 | 6 | 144 |

D) Test Set Classification Report

| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 1 | 0.96 | 0.96 | 0.96 | 25 |
| 2 | 0.96 | 0.88 | 0.92 | 25 |
| 3 | 0.92 | 0.96 | 0.94 | 25 |
| 4 | 0.86 | 0.96 | 0.91 | 25 |
| 5 | 0.96 | 0.88 | 0.92 | 25 |
| accuracy | | | 0.93 | 125 |
| macro avg | 0.93 | 0.93 | 0.93 | 125 |
| weighted avg | 0.93 | 0.93 | 0.93 | 125 |

E) Test Set Confusion Matrix

| Predicted Label \ True Label | 0 | 1 | 2 | 3 | 4 |
|------------------------------|----|----|----|----|----|
| 0 | 24 | 1 | 0 | 0 | 0 |
| 1 | 1 | 22 | 2 | 0 | 0 |
| 2 | 0 | 0 | 24 | 1 | 0 |
| 3 | 0 | 0 | 0 | 24 | 1 |
| 4 | 0 | 0 | 0 | 3 | 22 |