**Question 5**

Table Calculated Magnitude and phase of X[k]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **n** | **x[n]** | **X[k]** | **Magnitude** | **Phase** |
| 0 | 12 | 20 | 20 | 0 |
| 1 | 0 | 4 | 4 | 0 |
| 2 | 8 | 20 | 20 | 0 |
| 3 | 0 | 4 | 4 | 0 |

**Question 6**

Figure - Sampled Signal against Quantised Signal

**Question 7**

Figure - Quantisation Error

**Question 2**

Table - Samples of recovered signal

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample, n** | **Time (s)** | **Low Noise Recovered Signal** | **High Noise Recovered Signal** |
| 0 | 0 | 11.25 | 11.25 |
| 1 | 0.01 | 0.00 | 0.00 |
| 2 | 0.02 | 7.50 | 5.00 |
| 3 | 0.03 | 0.00 | 6.25 |
| 4 | 0.04 | 11.25 | 11.25 |
| 5 | 0.05 | 0.63 | 0.00 |
| 6 | 0.06 | 8.13 | 2.50 |
| 7 | 0.07 | 0.63 | 1.25 |
| 8 | 0.08 | 11.88 | 16.25 |
| 9 | 0.09 | 0.63 | 0.00 |
| 10 | 0.1 | 8.13 | 7.50 |

**Question 3**

Figure - Low noise

Figure - High noise