Question 1. The quantizer is implemented in Matlab/Octave as:

```
function y = quantize(x)
  y = round(x * 7) / 7;
  y = max(min(y, 1), -1);
end
```

The quantized sequence is:

```
>> x = [0.7, -0.1, 0.4, 0.6, -1.2];
>> xq = quantize(x)
xq =
   0.71429  -0.14286   0.42857   0.57143  -1.00000
```

Question 2. The error sequence is:

```
>> e = x - xq
e =
  -0.014286   0.042857  -0.028571   0.028571  -0.200000
```

Question 3. The SNR in dB is:

```
>> SNR = 10 * log10(sum(x.^2) / sum(e.^2))
SNR =  17.507
```

Question 4. This expression doesn't apply because it does *not* consider saturation error, only granular error. $x[n]$ does have a sample outside $[-1, 1]$ and therefore presents saturation error when quantized.

Question 5. The length of the sequence is the sum of all bins in the histogram: $10+0+5+20+40+50+100+50+30+20+0+5+5 = 335$ samples.

By adding the samples in the corresponding bins, we can see that 270 of those samples fall in the range $[-0.2, 0.2]$. Thus, their relative frequency (probability) is $\frac{270}{370} \simeq 80.60\,\%$.

Question 6. *Green* light is the most visible under photopic circumstances, as its average wavelength (534 nm) as well as its range, have the greatest luminous efficiency compared to the other kinds of light mentioned.

Question 7.

Color	R	G	B
white	X	X	X
red	X		
green		X	
blue			X
yellow	X	X	
magenta	X		X
cyan		X	X