Model Question paper for online examination

M.Sc.CS Part- 1 Paper 2 : Digital Signal Processing-I & II

Q1. What is the unit step response of the system described by the difference equation? y(n)=0.9y(n-1)-0.81y(n-2)+x(n) under the initial conditions y(-1)=y(-2)=0?

1. $[1.099+1.088(0.9)^n.\cos(\pi 3n+5.2o)]u(n)$
2. $[1.099+1.088(0.9)^n.\cos(\pi 3n-5.2o)]u(n)$
3. $[1.099+1.088(0.9)^n.\cos(\pi 3n-5.2o)]$
4. None of the mentioned

Q2. To reduce side lobes, in which region of the filter the frequency specifications have to be optimized?

1. Stop band
2. Pass band
3.Transition band
4. None of the mentioned

Q3. Which of the following windows has a time domain sequence h(n)=1/2(1−cos2πnM−1)?
1. Bartlett window
2. Blackman window
3. Hamming window
4. Hanning window

Q4. If the value of M increases then the main lobe in the frequency response of the rectangular window becomes _____.
1. Disappear
2. broader

3. Doubles.

4. Thinner.

Q5. The large side lobes of W(ω) results in which of the following undesirable effects?
1. Circling effects
2. Broadening effects
3. Ringing effects
4. None of these above

Q6. What is the nyquist rate of the signal x(t)=3cos(50*pi*t)+10sin(300*pi*t)-cos(100*pi*t)?

1. 50Hz
2. 100Hz
3. 200Hz
4. 300Hz

Q7. What is the discrete-time signal obtained after sampling the analog signal x(t)=cos(2000*pi*t)+sin(5000*pi*t) at a sampling rate of 5000 samples/sec?

1. cos(2.5*pi*n)+sin(pi*n)
2. cos(0.4*pi*n)+sin(pi*n)
3. cos(2000*pi*n)+sin(5000*pi*n)
4. none of the mentioned

Q8. If the sampling rate Fs satisfies the sampling theorem, then the relation between quantization errors of analog signal(eq(t)) and discrete-time signal(eq(n)) is?

1. eq(t)=eq(n)
2. eq(t)<eq(n)
3. eq(t)>eq(n)
4. not related