CS 3570 04072017quiz answer

1.

(i) c, d, e

(ii) b, f

(iii) a,d,c,f,e

(iv) d, c

2.

(a) The nearest neighbor algorithm fill current pixel with the value from the nearest point of original image by dividing current position with scale and then rounding it.

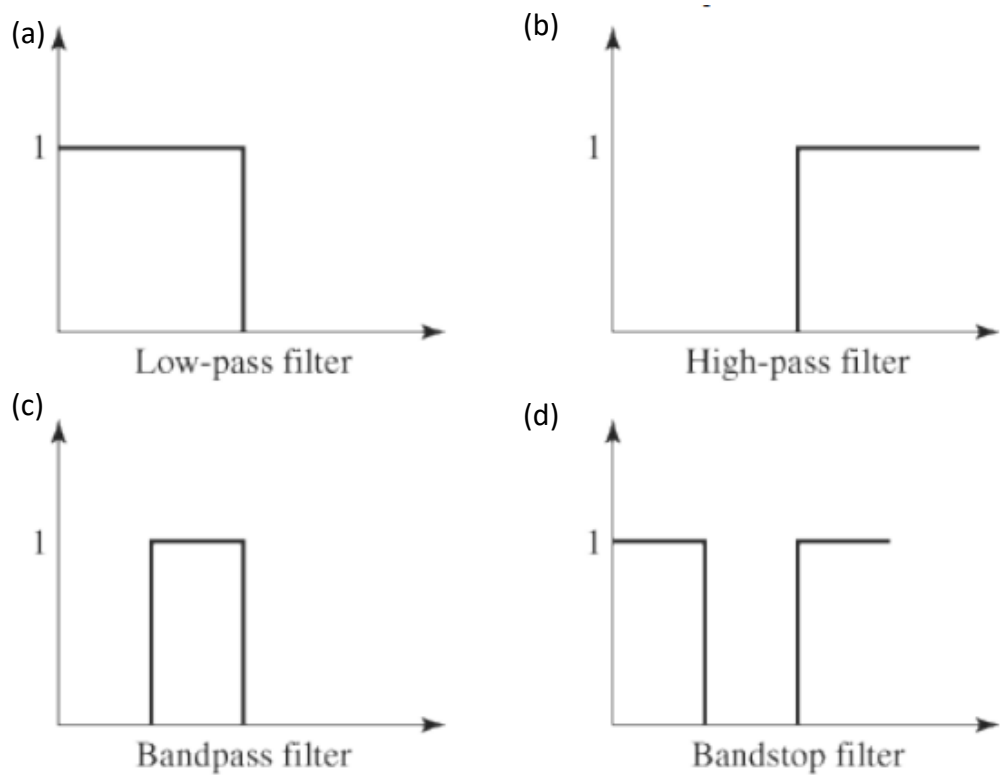
(b)

$$for\ i\ =\ 0{:}\ 2N-1\ :$$

$$for\ j = 0{:}\ 2N-1\ :$$

$$g(i,j)\ =\ f\left(floor\left(\frac{i}{2}\right), floor\left(\frac{j}{2}\right)\right)$$

3.



4.

(a)

$$y(n)\ = h(n) \otimes x(n) = \sum_{k=0}^{N-1} h(k)x(n-k)$$

$$= \sum_{k=0}^{3} h(k)x(n-k)$$

$$= x(n) \times h(0) + x(n-3) \times h(3)$$
$$= x(n) \times 1 + x(n-3) \times 0.5$$

(b) FIR, because the filter is not infinite ant it doesn't add the term of previous output signals.

(c) Echo