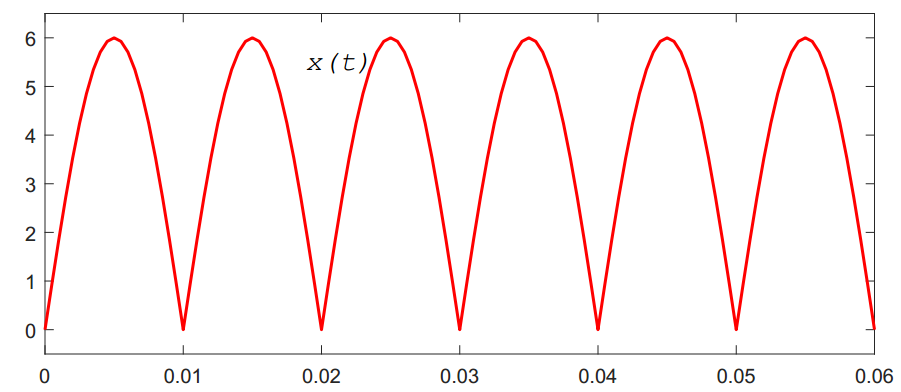
a)

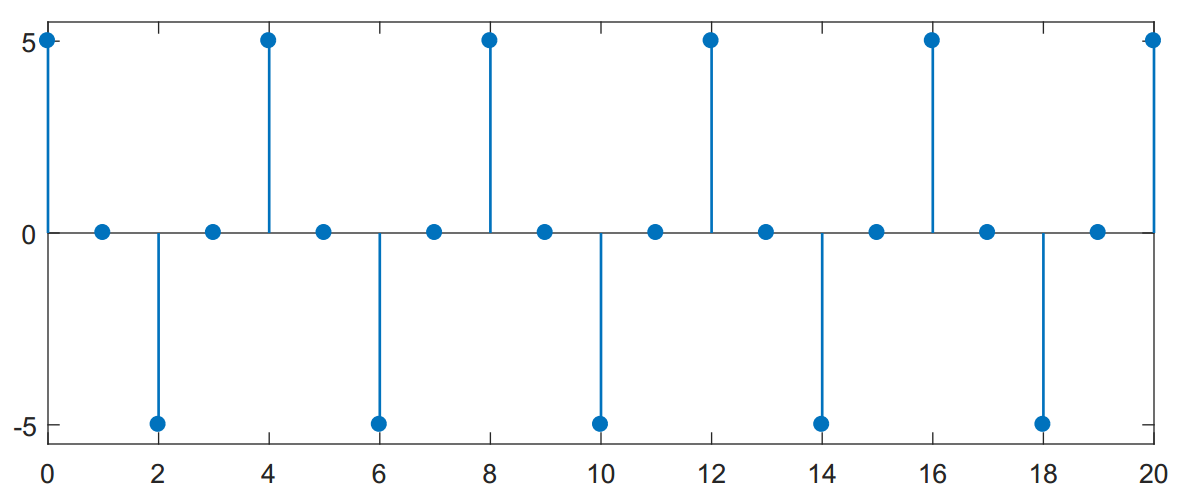


From the figure: .

b)

Sampling time:

Sampled signal:



Given that:

a)

1. Check for linearity:

Let:

From and , , the system is linear.

2. Check for time invariant:

Let:

(delay the ouput).

Let:

Since, , therefore, the system is time variant.

b)

Assume that is finite for all .

We have:

Therefore, with bounded input, the output will be bounded, which leads to the system is BIBO system.

Given that:

c) Given that:

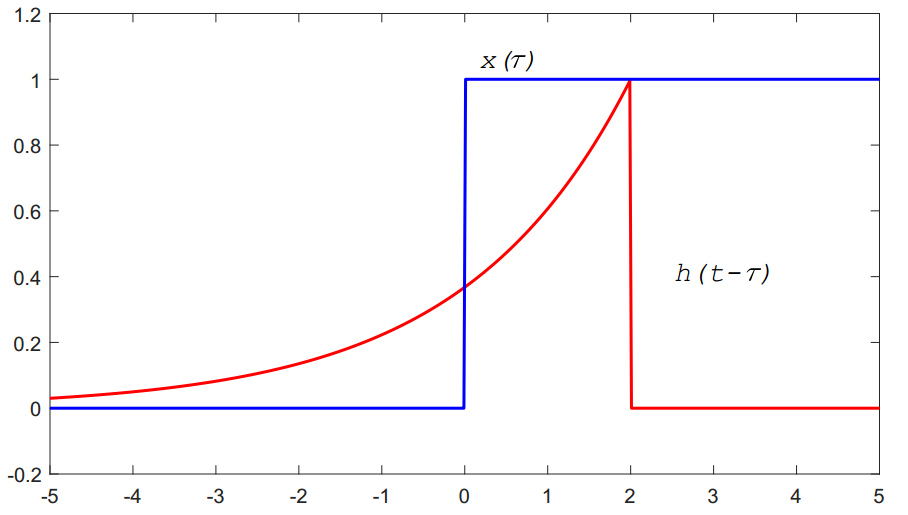
Therefore,

Given that:

a)

For , and does not overlap.

For :



Thus,

b)

We have:

By the properties of LTI system, the output is given by: