1. You are given a continuous-time LTI system with impulse response \( e^{-2t}u(t) \). Find the responses to the following input signals using convolution.

(a) \( u(t) \)
(b) \( e^t u(t) \)
(c) \( e^{-t} u(t) \)

2. Given a continuous-time LTI system with the impulse response \( h(t) = \delta(t) + 2^{-t}u(t) \), answer the following questions:

(a) Is the system causal?
(b) Is the system BIBO stable?
(c) Find the step response of the system.

3. The input \( x(t) \) and the output \( y(t) \) of a continuous-time LTI system are related through the equation

\[
y(t) = \int_{-\infty}^{0} x(t - \tau)d\tau.
\]

(a) Is this system causal?
(b) Is this system BIBO stable?
(c) Find the impulse response of the system.
(d) Find the step response of the system.