



**ISRA UNIVERSITY**  
Islamabad Campus

**School of Engineering & Applied Sciences**

**Spring Semester Examination 2018(B-Tech)**

<b>Course Code</b>	ETSS-314	<b>Course Name</b>	Signal & Systems
<b>Total Marks</b>	50	<b>Session</b>	Evening
<b>Time</b>	2 hrs. 30 Minutes	<b>Course Instructor</b>	Engr. Sadaf Sufwan

(Use CAPITAL letters)

Student Name:	Invigilator's Name:
Student Signature:	Invigilator's Signature:
Student Regd. No:	Date:

**Section-I**  
**Multiple Choice Questions**

**Marks: 10**

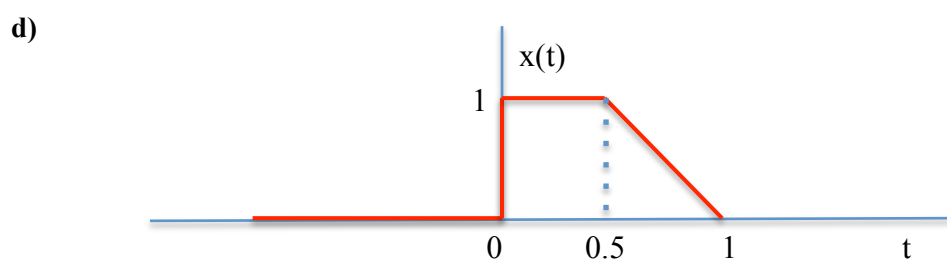
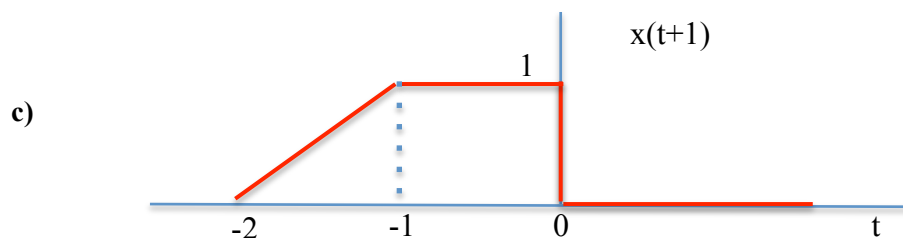
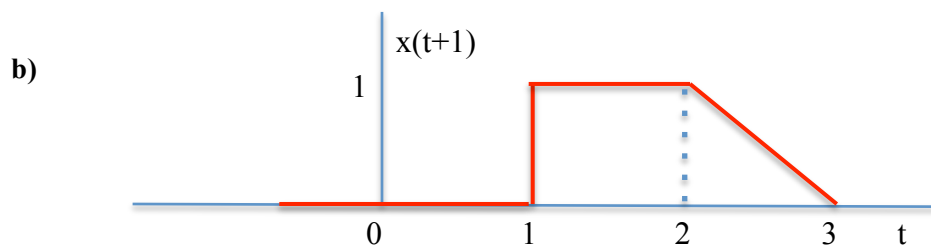
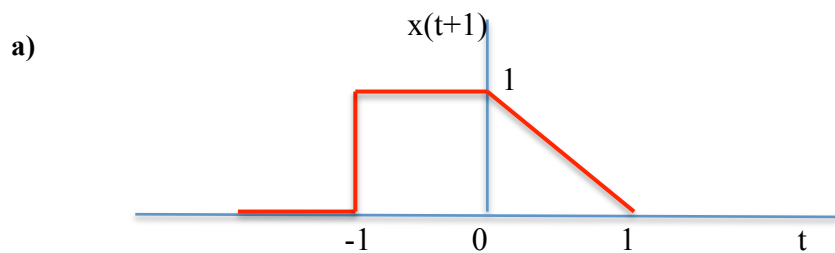
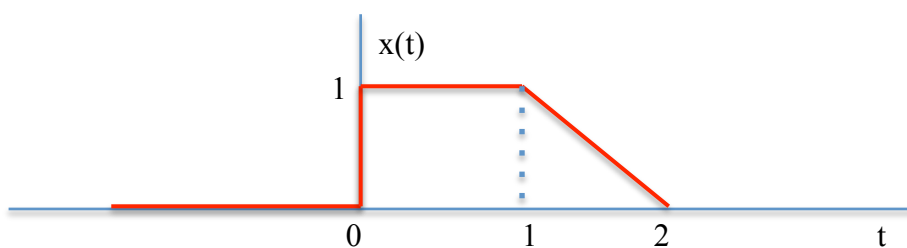
**Time Allowed: 20 Minutes**

Each statement is followed by four answers, marked A, B, C & D; only one of them is the best answer. Encircle the best answer. Each correctly circled best answer carries one mark. There is no negative marking for incorrect answer. No mark will be given for over writing, cutting or more than one encircled answers.

**PLEASE DO NOT OPEN THE PAPER UNTIL ASKED TO DO SO**

\*\*\*\*\***Good Luck**\*\*\*\*\*

1. A time invariant system is a system whose output:
  - a) Increases with a delay in input
  - b) Remains same with a delay in input
  - c) Decreases with a delay in input
  - d) Vanishes with a delay in input
  
2. In a time shift operation, if  $t_0 > 0$  then:
  - a) The time shift is known as advance.
  - b) The time shift is known as delay.
  - c) The signal is decimated.
  - d) None of the above.
  
3. For the signal shown below, if we shift it with  $t_0 = -1$ , then the result will be:



4. A signal  $x(t)$  is said to be power signal if:
- $0 < P < \infty$  and  $E = \infty$
  - $0 < P < E$  and  $E = 0$
  - $0 < P < \infty$  and  $E = 0$
  - None of the above
5. The convolution of  $x(t)$  and  $h(t)$  is defined by:
- $y(t) = \int_{-\infty}^{\infty} x(\tau)h(t - \tau)d\tau$
  - $y(t) = \int_{-\infty}^{\infty} [x(\tau) + h(t - \tau)]d\tau$
  - $y(t) = \int_{-\infty}^{\infty} x(\tau)h(t - \tau)d\tau$
  - None of the above.
6. Memory in a discrete time system is analog if:
- Energy storage in a continuous time system.
  - Memory in a continuous time system.
  - Sampled memory of a continuous time LTI system.
  - None of the above.
7. The impulse response of a system is  $h[n] = a^n u[n]$ . The condition for the system to be BIBO stable is:
- “a” is real and positive.
  - “a” is real and negative.
  - $|a| > 1$ .
  - $|a| < 1$ .
8. The continuous time system described by  $y(t) = x(t^2)$  is:
- Causal, linear and time varying.
  - Causal, non-linear and time varying.
  - Non-causal, non-linear and time-invariant.
  - Non-causal, linear and time-invariant.
9. The transfer function of a stable system is  $H(z) = \frac{1}{1-0.5z^{-1}} + \frac{1}{1-2z^{-1}}$ . Its impulse response will be:
- $(0.5)^n u[n] - (2)^n u[n]$ .
  - $-(0.5)^n u[n - 1] + (2)^n u[n]$ .
  - $(0.5)^n u[n] - (2)^n u[-n - 1]$ .
  - None of the above.
10. The function which has its Fourier transform, Laplace transform and Z-transform unity is:
- Gaussian.
  - Sinc.
  - Pulse.
  - Impulse.