

Señales y Sistemas

Examen

CINVESTAV - UNIDAD TAMAULIPAS

Dr. José Juan

Luis Alberto Ballado Aradias

Pregunta 1

Dibuja las siguientes señales

1. $x[n] = u[n + 3] + 0,5u[n - 1]$
2. $x[n] = -1^n u[-n - 2]$
3. $x[n] =$

While this question leaves out the crucial element of the geographic origin of the swallow, according to Jonathan Corum, an unladen European swallow maintains a cruising airspeed velocity of **11 metres per second**, or **24 miles an hour**. The velocity of the corresponding African swallows requires further research as kinematic data is severely lacking for these species.

Pregunta 2

Describe todas las características que sean evidentes de los siguientes sistemas

1. $y[n] = 3x[n - 1] + 2x[n - 2] + 0,75x[n + 4] - 3y[n - 1]$
2. $y[n] = x[n] \cos \left[\frac{n}{2\pi} \right]$
3. $y[n] = 2n^2 x[n] + n \times x[n + 1]$

While this question leaves out the crucial element of the geographic origin of the swallow, according to Jonathan Corum, an unladen European swallow maintains a cruising airspeed velocity of **11 metres per second**, or **24 miles an hour**. The velocity of the corresponding African swallows requires further research as kinematic data is severely lacking for these species.

Pregunta 3

Calcular la transformada Z de las 3 señales y los 3 sistemas previamente descritos.

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)} \quad (1)$$

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent porttitor arcu luctus, imperdiet urna iaculis, mattis eros. Pellentesque iaculis odio vel nisl ullamcorper, nec faucibus ipsum molestie. Sed dictum nisl non aliquet porttitor. Etiam vulputate arcu dignissim, finibus sem et, viverra nisl. Aenean luctus congue massa, ut laoreet metus ornare in. Nunc fermentum nisi imperdiet lectus tincidunt vestibulum at ac elit. Nulla mattis nisl eu malesuada suscipit.

Pregunta 4

Describe que es una eigenfunción en términos de señales y sistemas.

Per 50g	Pork	Soy
Energy	760kJ	538kJ
Protein	7.0g	9.3g
Carbohydrate	0.0g	4.9g
Fat	16.8g	9.1g
Sodium	0.4g	0.4g
Fibre	0.0g	1.4g

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent porttitor arcu luctus, imperdiet urna iaculis, mattis eros. Pellentesque iaculis odio vel nisl ullamcorper, nec faucibus ipsum molestie. Sed dictum nisl non aliquet porttitor. Etiam vulputate arcu dignissim, finibus sem et, viverra nisl. Aenean luctus congue massa, ut laoreet metus ornare in. Nunc fermentum nisi imperdiet lectus tincidunt vestibulum at ac elit. Nulla mattis nisl eu malesuada suscipit.

Pregunta 5

Describe las características particulares de la transformada de Laplace.

Pregunta 6

Realice un programa, en cualquier lenguaje que prefiera, que ejecute las siguientes tareas.

- Recibe como entrada en texto plano la descripción de una señal y de un sistema, discretos ambos.
- Dibuja la señal y la respuesta al impulso del sistema.
- Ejecuta la convolución entre ambas entradas y dibujar la señal resultante.

Listing 1: Luftballons Perl Script

```
1  #!/usr/bin/perl
2
3  use strict;
4  use warnings;
5
6  for (1..99) { print $_." Luftballons\n"; }
7
8  # This is a commented line
9
10 my $string = "Hello World!";
11
```

```
12 print $string. "\n\n";
13
14 $string =~ s/Hello/Goodbye Cruel/;
15
16 print $string. "\n\n";
17
18 finale ();
19
20 exit ;
21
22 sub finale { print "Fin.\n"; }
```

(a) How many luftballons will be output by the Listing 1 above?

99 luftballons.

(b) Identify the regular expression in Listing 1 and explain how it relates to the anti-war sentiments found in the rest of the script.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent porttitor arcu luctus, imperdiet urna iaculis, mattis eros. Pellentesque iaculis odio vel nisl ullamcorper, nec faucibus ipsum molestie. Sed dictum nisl non aliquet porttitor. Etiam vulputate arcu dignissim, finibus sem et, viverra nisl. Aenean luctus congue massa, ut laoreet metus ornare in. Nunc fermentum nisi imperdiet lectus tincidunt vestibulum at ac elit. Nulla mattis nisl eu malesuada suscipit.