## University of Abbes Laghrour – Khenchela



Faculty of Science and Technology Department of Material Sciences

Computer Science 2: Programming Language

1SM Final exam - Duration: 01:30

Full Name:		Group:
Exercise 1 (10 pts)	)	
Choose the correct answer by	circling the appropriate letter.	
1. What does the command a) 3	d length([5 6 7 8]) return? b) 4	c) 5
<ul><li>2. Which of the following can also zeros (2)</li></ul>	ommands will generate a $2\times2$ mathematical by zeros(2,2)	trix of zeros? c) Both
3. What does A(2,3) refer a) Row 2, Column 3	to in a matrix A? b) Column 2, Row 3	c) Element 2 of column 3
4. How do you write a com a) //	ment in MATLAB? b) #	c) <b>%</b>
5. What is the output of mo	od(7,3)? b) 2	c) 3
6. Which of the following can a) 1:5	reates a row vector with values from b) [1 2 3 4 5]	om 1 to 5? c) Both
<ul> <li>7. What does the function a) A 3×3 matrix of ones</li> <li>b) A 3×3 matrix of zeros</li> <li>c) A 3×3 matrix of rand</li> </ul>		
8. Which command is used a) clear all	to clear all variables from the words b) clc	rkspace?
9. What is the result of sur a) 10	m([1 2 3 4])? b) 24	c) 0
10. Which command display a) plot(x^2)	s a graph of $y = x^2$ for $x$ from -10 b) plot(x,x.^2)	to 10?

# Exercise 2 (10 pts)

1. Write a program in MATLAB called is\_even that takes one input x and returns true if the number is even, otherwise returns false.

2. Write a program in MATLAB to sum the elements of the **main diagonal** of a square matrix A[n,n].

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Full	Name:	Group:	
$\mathbf{E}\mathbf{x}$	ercise 1 (10 pts)		
1.	What does the command 1 a) 3	ength([5 6 7 8]) return? b) 4	c) 5
2.	Which of the following com a) zeros(2)	mands will generate a $2\times 2$ matr b) zeros(2,2)	ix of zeros? c) Both
3.	What does A(2,3) refer to a) Row 2, Column 3	in a matrix A? b) Column 2, Row 3	c) Element 2 of column 3
4.	How do you write a comme a) //	nt in MATLAB? b) #	c) %
5.	What is the output of mod(a) 1	(7,3)? b) 2	c) 3
6.	Which of the following crea a) 1:5	tes a row vector with values from b) [1 2 3 4 5]	n 1 to 5?
7.	What does the function ran a) A 3×3 matrix of ones b) A 3×3 matrix of zeros c) A 3×3 matrix of random		
8.	Which command is used to a) clear all	clear all variables from the work b) clc	m cspace?
9.	What is the result of sum([a) 10	(1 2 3 4])? b) 24	c) (
10.	Which command displays a a) plot(x^2)	graph of $y = x^2$ for $x$ from -10 to b) plot(x,x.^2)	to 10? c) plot(x=x^2)

# Exercise 2 (10 pts)

#### 1. Check if a number is even (5 pts)

```
x = input('Enter a number: ');
if mod(x,2) == 0
    disp('The number is even');
else
    disp('The number is odd');
end
```

### 2. Sum of the main diagonal of a matrix (5 pts)

```
n = input('Enter the size of the matrix: ');
A = zeros(n);
for i = 1:n
    for j = 1:n
        A(i,j) = input(['Enter element A(',num2str(i),',',num2str(j),'): ']);
    end
end
s = 0;
for i = 1:n
    s = s + A(i,i);
end
disp(['Sum of the main diagonal is: ', num2str(s)]);
```