SHRI MATA VAISHNO DEVI UNIVERSITY

B. Tech. (ECE) Minor Examination I (Odd) 2022-23

Entry No: 2 0 B E C 0 8 5

Date:

Course Title: MATLAB Programming

Time Allowed: Time Allowed: 1hr 30 minutes

Total Number of Questions: [5]

Course Code: (ECL 1200)

Max Marks: [30]

Instructions / Note

NO CONTINUATION SHEET ALLOWED

i. Attempt all questions in sequence only 2. Section B use program templates as taught in class

Q1	Answer and justify with appropriate comments/examples a) What is the difference between the 'help' and the 'look for' command? b) What are MEX files in MATLAB c) Find the error in the following code. x=[10:1:10]; y=[10:2:10];plot(x,y) d) Explain in detail how many times the loop runs for the code for i={1:.1:5} p=p+1; end e) What is the error in the following code? for i={1: 10} p=a+1; end f) Write the code would you use to find the value of the function f? f(x)=sin(x) + cos (x) + tan (x) at x = π/4 g) What will be the output of the following code A=100; if(A>99) clear A; end h) What is the difference between the two codes P=[91,'pi']; and Q=[91,pi];	8* 1.5
Q2	A student is repeatedly calling a function file but gets no output. She has checked the file repeatedly so finally she asked her teacher about it. The teacher checked everything and found the error and gives her a scolding. What is the silly mistake? Assuming the function and function call is correct and function logic is also acceptable.	3

Section B

Q3	Comment the given function code. Assume n=15 and 50 then find the o/p . Frame a question to get such code as answer **function [out] = XXXXXX(n)** **q3 = [3:3:n];** **q5 = [5:5:n];** **tot = [q3 q5];** **out = sum(tot);** **f = floor(n/15);** **fac = [1:1:f];** **sub = sum(fac.*15);** **out = out - sub** **end**	5
Q4	**Write a function** called reverse_diag that creates a square matrix whose elements are 0 except for 1s on the reverse diagonal from top right to bottom left. The reverse diagonal of an n by-n matrix consists of the elements at the following indexes: (1, n), (2, n-1), (3, n-2), … (n, 1). The function takes one positive integer input argument named n, which is the size of the matrix, and returns the matrix itself as an output argument. Note that using the built-in functions eye and diag are not allowed. **Comment** all lines and **show flow diagram, algo also**	5
Q5	Write a function called **intquad** that takes as its input arguments two scalar positive integers named 'n' and 'm' in that order. The function returns Q, a 2n-by-2m matrix. Q consists of four n-by-m submatrices. The elements of the submatrix in the top left corner are all 0s, the elements of the submatrix at the top right are 1s, the elements in the bottom left are 2s, and the elements in the bottom right are 3s	5

Course objective

Understanding the MATLAB environment	Q1
Being able to do simple calculations using MATLAB	Q2
Being able to carry out simple numerical computations and analyses using MATLAB	Q3,4,5

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA

B. Tech. (ECE) Minor Examination I (Odd) 2022-23 (Jan-June 23)

Entry No: | | | | | | | | | | |

Total Number of Pages: |01|

Date:

Total Number of Questions: |5|

Course Title: MATLAB Programming Course Code:(ECL1200)

Time Allowed: 1hr 30 minutes Max Marks: [20]

Instructions / Note **NO CONTINUATION SHEET ALLOWED**

Attempt all questions in sequence only

A. To stop the execution of a MATLAB command, used keys (1)

B. What would be the output of the following code (in editor window)? A = [0 1; 1 0];B=2; C = A + B (1)

C. What is the purpose of the MATLAB Command Window? The Edit Window? The Figure Window?(3) (3)

D. Assume that array c is defined as shown, and determine the contents of the following subarrays:

```
c = [1.1   23.2  3.4   0.6
     0.6   1.1   20.6  3.1
     1.3   0.6   5.5   0.0]
```

(a) c(2,:) (b) c(:,end) (c) c(1:2,2:end) (d) c(6) (e) c(4:end)
(f) c(1:2,2:4) (g) c([1 3],2) (h) c([2 2],[3 3]) (4)

E. Variables a, b, c, and d have been initialized to the following values: (6)
a = 3; b = 2; c = 5; d = 3; Evaluate the following MATLAB assignment statements:

(a) output = a*b+c*d;
(b) output = a*(b+c)*d;
(c) output = (a*b)+(c*d);
(d) output = a^b^d;
(e) output = a^(b^d);
(f) output= a*b+c*d+ a^b^d

F. Comment on the program and its output (5)

```
x = 0:pi/100:2*pi;
y1 = sin(2*x);
y2 = 2*cos(2*x);
plot(x,y1,'k-',x,y2,'b--');
title ('Plot of f(x) = sin(2x) and its derivative');
xlabel ('x');
ylabel ('y');
legend ('f(x)','d/dx f(x)','tl')
grid on;
```

Course objective

Understanding the MATLAB environment	Q1
Being able to do simple calculations using MATLAB	Q2
Being able to carry out simple numerical computations and analyses using MATLAB	Q3,4,5

C-209.

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA

B. Tech. (ECE) Minor Examination II (Odd) 2022-23 (Jan-June 23)

Entry No: | 2 | 1 | B | E | C | 1 | 2 | 7 | | |

Total Number of Pages: [01]

Date: 28th Mar23

Total Number of Questions: [5]

Course Title: MATLAB Programming

Course Code:(ECL1200)

Time Allowed: 1hr 30 minutes

Max Marks: [20]

Instructions / Note **NO CONTINUATION SHEET ALLOWED**

Attempt all questions in sequence only.

1. Examine the following loops and determine the value in ires at the end of each of the loops. 2+2

A.
```
ires = 0;
for index1 = 1:10
for index2 = index1:10
if index2 == 6
continue;
end
ires = ires + 1;
end
end
```

B.
```
ires = 0;
for index1 = 1:10
for index2 = index1:10
if index2 == 6
break;
end
ires = ires + 1;
end
end
```

2. Comment on the statement " The MATLAB Just-in-Time (JIT) Compiler" list its limitations (list at least three) 1+3

3. Describe The MATLAB Profiler in detail along with steps to use the same. Also Explain the advantage of using it 1+ 3

4. Write a function called intquad that takes as its input arguments two scalar positive integers named n and m in that order. The function returns Q, a 2n-by-2m matrix. Q consists of four n-by-m submatrices. The elements of the submatrix in the top left corner are all 0s, the elements of the submatrix at the top right are 1s, the elements in the bottom left are 2s, and the elements in the bottom right are 3s comment and explain 1+3

5. WAP to convert a string containing a day of week into the corresponding number. comment and explain 1+3

Course objective

Understanding the MATLAB environment	Q1
Being able to do simple calculations using MATLAB	Q2
Being able to carry out simple numerical computations and analyses using MATLAB	Q3,4,5

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA

B. Tech. (ECE) Major Examination I (Odd) 2022-23 (April23)

Entry No: | | | | | | | | | | |

Date:10th April 23 **Total Number of Pages: [01]**

Course Title: MATLAB Programming **Total Number of Questions: [5]**

Time Allowed: 2 hrs 30 minutes **Course Code: (ECL 1200)**

Max Marks: [50]

Instructions / Note **NO CONTINUATION SHEET ALLOWED**

i. Attempt all questions in sequence only 2. Comment and justify the working of program

Q1	**Answer and justify with appropriate comments/examples.** a) How would you start a debugger in MATLAB? b) Comment on the statement "The MATLAB Just-in-Time (JIT) Compiler" list its limitations (list at least three c) Describe The MATLAB Profiler in detail along with steps to use the same. Also Explain the advantage of using it d) What is the purpose of the MATLAB Command Window, the Edit Window &-the Figure Window e) Find the error in the following code. x=-10:1:10; y= -10:2:10; plot(x,y) f) Explain in detail how many times the loop runs for the code for i={1: .1:5} p=p+1; end g) What is the error in the following code? for i={1: 10} p=a+1; end	21 7* 3
Q2	a) Explain about the mentioned tools in MATLAB: who, whos, pi, eps, type b) What are the basic Plots and Graphs of MATLAB. List and explain detail with one program example	5 6

Section B (Comment and draw flow chart)

Q 3	Write a function called eligible that helps the admission officer of the Graduate School of SMVD University decide whether the applicant is eligible for admission based on GRE scores. The function takes two positive scalars called v and q as input. They represent the percentiles of the verbal and quantitative portions of the GRE respectively. You do not need to check the input. The applicant is eligible if the average percentile is at least 92% and both of the individual percentiles are over 88%. The function returns the logical true or false.	**6**
Q 4	Write a function called holiday that takes two input arguments called month and day; both are scalar integers representing a month (1-12) and a day (1-31). You do not need to check that the input is valid. The function returns a logical true if the specified date is a holiday; if not, it returns false. For the purposes of this exercise, the following dates are considered holidays: January 1st, July 4th, December 25th, and December 31st.	6
Q 5	Write a function called sort3 that takes a 3-element vector as its sole arguments. It uses if-statements, possibly nested, to return the three elements of the vector as three scalar output arguments in nondecreasing order, i.e., the first output argument equals the smallest element of the input vector and the last output argument equals the largest element. NOTE: Your function may not use any built-in functions, e.g., sort, min, max, median, etc	6

Course objective

Understanding the MATLAB environment	Q1
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