https://www.sanfoundry.com/matlab-questions-answers-branching-1/

# MATLAB Questions and Answers – Input and Output

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Input and Output”.

1. MATLAB stands for?  
a) matrix laboratory  
b) math library  
c) matric library  
d) matrix library  
View Answer

Answer: a  
Explanation: MATLAB stands for matrix laboratory which is multi-paradigm numerical computing environment and fourth-generation programming language.

2. Which command is used to clear a command window?  
a) clear  
b) close all  
c) clc  
d) clear all  
View Answer

Answer: c  
Explanation: clc clears all input and output from the Command Window display and provide a “clean screen”. After using clc, you cannot use the scroll bar to see the history of functions, but you still can use the up arrow key, ↑, to recall statements from the command history.

3. To determine whether an input is MATLAB keyword, command is?  
a) iskeyword  
b) key word  
c) inputword  
d) isvarname  
View Answer

Answer: a  
Explanation: Command iskeyword uses the MATLAB command format. iskeyword returns a list of all MATLAB keywords. It gives output in the form of 1 and 0.

4. Command used to display the value of variable x.  
a) displayx  
b) disp(x)  
c) disp x  
d) vardisp(‘x’)  
View Answer

Answer: b  
Explanation: disp(X) displays the value of variable X without printing the variable name. Another way to display a variable is to type its name, but this displays a leading “X =”, which is not always ideal. If a variable contains an empty array, disp returns without displaying anything.

5. Which of the following statements shows the result of executing the following line in the editor window?

size = [1 3]’ ;  size(size)

a) error  
b) 1 3  
c) 3 1  
d) 3 3  
View Answer

Answer: a  
Explanation: Executing the command iskeyword size returns 0, i.e., size is not a MATLAB keyword. Same command should not be used as a variable in MATLAB, so there is a error message.

6. Executing in the command window the following code returns.

a = [1:3]’ ; size(a)

a) error message  
b) 1 3  
c) 3 1  
d) 31  
View Answer

Answer: c  
Explanation: It forms a 2×1 matrix of 3 and 1 because transpose condition is there, so size(a) returns transposed value.

7. Command is used to save command window text to file.  
a) saveas  
b) texttofile  
c) diary  
d) todiary  
View Answer

Answer: c  
Explanation: The diary function creates a log of keyboard input and the resulting text output, with some exceptions. The output of diary is an ASCII file, suitable for searching in, printing, inclusion in most reports and other documents.

8. Executing in the editor window the following code returns.

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a = 1; sin(a) a = 2;

a) 0.4815  
b) 0.8415  
c) 1  
d) 0.9093  
View Answer

Answer: b  
Explanation: It chooses the value of a is 1 because it follows line pattern as it neglects 2 because this command is written after sin command.

9. To stop the execution of a MATLAB command, used keys?  
a) ctrl+c  
b) ctrl+s  
c) ctrl+b  
d) ctrl+enter  
View Answer

Answer: a  
Explanation: Ctrl+C stop execution for files that run a long time, or that call built-ins or MEX-files that run a long time. Ctrl+Break is also used to stop the execution.

10. Which is the invalid variable name in MATLAB?  
a) x6  
b) last  
c) 6x  
d) z  
View Answer

Answer: c  
Explanation: A valid variable name starts with a letter, followed by letters, digits, or underscores. MATLAB is case sensitive, so A and a are not the same variables, and in 6x digit is followed by a letter which is invalid.

MATLAB Questions and Answers – Arithmetic – 1

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Arithmetic – 1”.

10. What would be the output of the following code (in editor window)?

A = [0 1; 1 0] ; B=2 ; C = A + B

a)

1 2

4 5

b)

2 3

3 2

c)

3 2

3 2

d)

3 2

2 3

View Answer

Answer: b  
Explanation: C = A + B adds arrays A and B and returns the result in C.  
C = plus(A,B) is an alternate way to execute A + B, but is rarely used. It enables operator overloading for classes.

12. What would be the output of the following code (in editor window)?

A = [1 0 2] ; b = [3 0 7] ; c=a.\*b;

a) [2 0 21]  
b) [3 0 14]  
c) [14 0 3]  
d) [7 0 3]  
View Answer

Answer: b  
Explanation: C = a.\*b multiplies arrays a and b element by element and returns the result in C.

13. What would be the output of the following code (in editor window)?

a=1:5 ; c=a.^2

a) [1 25]  
b) [1 2 3 4 5]  
c) [25 16 9 4 1]  
d) [1 4 9 16 25]  
View Answer

Answer: d  
Explanation: c=a.^2 raises each element of a to the corresponding power i.e. 2. It will square each element.  
[12 22 32 42 52] = [1 4 9 16 25].

14. What would be the output of the following code (in editor window)?

A = [1 1 0 0]

B = [1 ;2 ;3 ;4]

C=A\*B

a) 0  
b) [1 0 0 0]  
c) 3  
d) [1 2 0 0]  
View Answer

Answer: c  
Explanation: The result is a 1-by-1 scalar, also called the dot product or inner product of the vectors A and B. Alternatively, you can calculate the dot product A • B with the syntax dot(A,B).  
Multiply B times A.

15. What would be the output of the following code (in editor window)?

A = [1 2; 3 4]

C = A^2

a) [7 10; 15 22]  
b) [1 4; 9 16]  
c) [16 9; 4 1]  
d) [22 15; 10 7]  
View Answer

Answer: a  
Explanation: C = A2 computes A to the 2 power and returns the result in C. The syntax A2 is equals to A\*A.  
A2 = [1 2; 3 4] \*[1 2; 3 4] [7 10; 15 22].

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16. What would be the output of the following code (in editor window)?

A=1:5;

B=cumprod(A)

a) b=[1 2 6 24 120]  
b) b=[1 2 3 4 5]  
c) b=[5 4 3 2 1]  
d) b=[120 24 6 2 1]  
View Answer

Answer: a  
Explanation: B = cumprod(A) returns the cumulative product of A starting at the beginning of the first array dimension in A whose size does not equal 1. B(2) is the product of A(1) and A(2), while B(5) is the product of elements A(1) through A(5).

17. Create an array of logical values.

A = [true false true; true true false]

A = 1 0 1

1 1 0

B = cumprod(A,2)

Find the cumulative product of the rows of A.  
a)

B = 1 0 0

0 1 0

b)

B = 1 0 0

1 1 0

c)

B = 1 0 0

1 1 1

d)

B = 1 1 0

1 1 0

View Answer

Answer: b  
Explanation:

B = 1 0 0

1 1 0

The output is double.  
class(B)  
ans = double.

18. Find the cumulative sum of the columns of A.

A =1 4 7

2 5 8

3 6 9

B = cumsum(A)

a)

B = 1 4 7

3 8 15

6 15 24

b)

B = 1 4 7

4 9 15

4 15 24

c)

B = 1 4 7

3 9 15

6 15 29

d)

B = 1 4 7

3 9 15

6 15 24

View Answer

Answer: d  
Explanation: B = cumsum(A) returns the cumulative sum of A starting at the beginning of the first array dimension in A whose size does not equal 1. If A is a matrix, then cumsum(A) returns a matrix containing the cumulative sums for each column of A. B(5) is the sum of A(4) and A(5), while B(9) is the sum of A(7), A(8), and A(9).

19. Create a 4-by-2-by-3 array of ones and compute the sum along the third dimension.

A = ones(4,2,3);

S = sum(A,3)

a)

S = 3 3

3 3

3 3

3 3

b)

S = 3 4

3 4

3 4

3 4

c)

S = 2 3

2 3

2 3

2 3

d)

S = 7 3

5 3

6 3

3 3

View Answer

Answer: a  
Explanation: S = sum(A) returns the sum of the elements of A along the first array dimension whose size does not equal 1. If A is a multidimensional array, then sum(A) operates along the first array dimension whose size does not equal 1, treating the elements as vectors. This dimension becomes 1 while the sizes of all other dimensions remain the same.

MATLAB Questions and Answers – Arithmetic – 2

This set of MATLAB Interview Questions and Answers focuses on “Arithmetic – 2”.

20. Round each value in a duration array to the nearest number of seconds greater than or equal to that value.

t = hours(8) + minutes(29:31) + seconds(1.23);

t.Format = 'hh:mm:ss.SS'

t = 08:29:01.23 08:30:01.23 08:31:01.23

Y1 = ceil(t)

Y2 = ceil(t,'hours')

a)

Y1 = 08:29:02.00 08:30:02.00 08:31:02.00

Y2 = 09:00:00.00 09:00:00.00 09:00:00.00

b)

Y1 = 08:29:02.00 08:30:02.00 08:31:02.00

Y2 = 08:29:01.23 08:30:01.23 08:31:01.23

c)

Y1 = 08:29:01.23 08:30:01.23 08:31:01.23

Y2 = 08:29:01.23 08:30:01.23 08:31:01.23

d)

Y1 = 008:29:01.23 08:30:01.23 08:31:01.23

Y2 = 09:00:00.00 09:00:00.00 09:00:00.00

View Answer

Answer: a  
Explanation: Y = ceil(t, unit) rounds each element of t to the nearest number of the specified unit of time greater than or equal to that element. Round each value in t to the nearest number of hours greater than or equal to that value.

21. What would be the output of the following code (in editor window)?

X = [1.4+2.3i 3.1-2.2i -5.3+10.9i]

X = 1.4000 + 2.3000i 3.1000 - 2.2000i -5.3000 +10.9000i

Y = fix(X)

a) Y = 1.0000 + 2.0000i 3.0000 – 4.0000i -5.0000 +10.0000i  
b) Y = 2.0000 + 3.0000i 3.1000 – 2.2000i -5.3000 +10.9000i  
c) Y = 1.0000 + 2.0000i 3.0000 – 2.0000i -5.0000 +10.0000i  
d) Y = 2.0000 + 3.0000i 3.1000 – 2.2000i -5.3000 +10.9000i  
View Answer

Answer: c  
Explanation: Y = fix(X) rounds each element of X to the nearest integer toward zero. For positive X, the behavior of fix is the same as floor. For negative X, the behavior of fix is the same as ceil.

22. Compute 24 modulo 5.

b = mod(24,5)

a) b = 3  
b) b =4  
c) b =5  
d) b =6  
View Answer

Answer: b  
Explanation: b = mod(a,m) returns the remainder after division of a by m, where a is the dividend and m is the divisor. This function is often called the modulo operation and is computed using b = a – m.\*floor(a./m). The mod function follows the convention that mod(a,0) returns a.

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23. What would be the output of the following code (in editor window)?

X = [1 2 3;4 5 6;7 8 9];

Y = [9 8 7;6 5 4;3 2 1];

R = rem(X,Y)

a)

R = 1 2 1

4 0 9

1 0 0

b)

R = 1 2 3

3 0 2

1 0 0

c)

R = 1 2 3

4 1 2

1 1 0

d)

R = 1 2 3

4 0 2

1 0 0

View Answer

Answer: d  
Explanation: R = rem(X,Y) returns the remainder after division of X by Y. In general, if Y does not equal 0, R = rem(X,Y) returns X – n.\*Y, where n = fix(X./Y). If Y is not an integer and the quotient X./Y is within round off error of an integer, then n is that integer. Inputs X and Y must have the same dimensions unless one of them is a scalar double. If one of the inputs has an integer data type, then the other input must be of the same integer data type or be a scalar double.

24. If one operand is a scalar and the other is not, then MATLAB applies the scalar to every element of the other operand. This property is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_  
a) operand divergence  
b) scalar expansion  
c) vector expansion  
d) dimension declaration  
View Answer

Answer: b  
Explanation: If one operand is a scalar and the other is not, then MATLAB applies the scalar to every element of the other operand. This property is known as scalar expansion because the scalar expands into an array of the same size as the other input, then the operation executes as it normally does with two arrays.

25. Matrix operations follow the rules of linear algebra and are not compatible with multidimensional arrays.  
a) true  
b) false  
View Answer

Answer: a  
Explanation: Matrix operations follow the rules of linear algebra and are not compatible with multidimensional arrays. The required size and shape of the inputs in relation to one another depends on the operation.

7. Conversion Function int16 uses\_\_\_\_\_\_\_\_\_ range of value?  
a) -27 to 27-1  
b) -215 to 215-1  
c) -231 to 231-1  
d) 0 to 216-1  
View Answer

Answer: b  
Explanation: Conversion Function int16 having class of signed 16-bit integer. And signed 16-bit integer follows -215 to 215-1 range.

27. Largest and smallest values for integer classes is 127 to -128.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: Obtain these values with the intmax and intmin functions:  
intmax(‘int8’)  
ans = 127  
intmin(‘int8’) –  
ans = 128.

MATLAB Questions and Answers – Algebra

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Algebra”.

28. What is the difference between syms ‘x’ and sym ‘x’?  
a) there is no difference, they are the same functions  
b) they are equivalent  
c) syms ‘x’ makes the declaration long lasting while sym ‘x’ makes the declaration short lasting  
d) syms ‘x’ makes the symbol short lasting while sym ‘x’ makes the declaration long lasting  
View Answer

Answer: c  
Explanation: sym ‘x’ makes the declaration short lasting. If it is assigned to a variable, x say, the function is equivalent to syms ‘x’. This makes syms ‘x’ long lasting.

29. What is the nature of the arrangement of the coefficients to store the following expression in MATLAB?

y= 3x5 + x2 + 6

a) y=[3,0,0,1,0,6]  
b) y=[3,1,6]  
c) y=[3;0;0;1;0;6]  
d) y=[6,0,1,0,0,3]  
View Answer

Answer: a  
Explanation: To enter the co-efficient of a polynomial, the variable terms are arranged in descending order of the power of the variable. It cannot be a column vector. If the descending order is not consecutive, one has to put 0 within the row vector to indicate that the co-efficient of the missing order is zero.

30. In the function vpa(‘981’,10), why do we put 981 within inverted commas?  
a) We can choose to not put the value within a pair of single inverted comma  
b) We do it so that we don’t get an approximated value  
c) We do it to get the exact value as MATLAB computes exact values, of numerical expressions, when declared within a string  
d) We do it to get a floating-point approximated value, approximated to 14 digits  
View Answer

Answer: c  
Explanation: Variable precision arithmetic in MATLAB is perfected by computing exact values and exact values are evaluated if the numerical expression is within a string. By not placing the pair of inverted commas, we get a floating point approximated value.

31. How would you simplify log(x20) – log(x13) – log(x7) in MATLAB? (Assume x is defined as a string variable)  
a) simplify(log(x20)-log(x13)–log(x7));  
b) log(x20) – log(x13) – log(x7)  
c) simplify(log(x20)-log(x13)–log(x7),’IgnoreAnalyticConstraints’,true)  
d) simplify(log(x20)-log(x13)–log(x7))  
View Answer

Answer: c  
Explanation: Option simplify(log(x20)-log(x13)–log(x7),’IgnoreAnalyticConstraints’,true) would evaluate to 0. The cases are used to produce a greater simplified expression for a polynomial. simplify(log(x20)-log(x13)–log(x7)) does not give any different output but the expression itself. Option log(x20) – log(x13) – log(x7) is incorrect since the powers should be represented as log(x20) in MATLAB.

32. What happens if we don’t assign a variable to an expression which evaluates a numerical value?  
a) MATLAB shows error  
b) Nothing happens  
c) The evaluated values are assigned to a variable ans automatically  
d) Depends on the numerical value  
View Answer

Answer: c  
Explanation: This is common for MATLAB. The evaluated numerical values are assigned to a variable ans if there is no body in the right hand side of a numerical expression. So the options MATLAB shows error is false.

33. MATLAB sees a \_\_\_\_\_\_\_\_ ordered variable as a vector of dimension n\*1.  
a) nth, (n+2)th  
b) nth, (n+3)th  
c) (n-1)th, nth  
d) nth, (n-1)th  
View Answer

Answer: c  
Explanation: The row vector which consists of the co-efficients of variables of a (n-1)th ordered polynomial in descending order is an nx1 vector where the last term is a constant term of the expression. The rest of the options are incorrect by the above statement.

34. What will be the output for the below block of code?

P=[1 3 2]; r=roots(P);

a) r=[-2,-2]  
b) r=[-2 -1]  
c) There is an error in the code  
d)

r = -2

-1

View Answer

Answer: d  
Explanation: The function roots(p) generate a column vector, and not a row vector, containing the roots of a polynomial. So option a and b cannot be the answer and there is no error in the code. The answer is option d.  
Output:

r = -2

-1

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35. Name the functions used, for multiplication and division of two polynomials in MATLAB.  
a) conv() and deconv()  
b) mult() and div()  
c) conv() and div()  
d) mult and div  
View Answer

Answer: a  
Explanation: Multiplication in a time domain is convolution in a frequency domain. This is the reason for the existence of MATLAB functions conv(), for multiplication of signals, and deconv() for division of signals. There are no functions like mult() and div().

36. How can the formulation of polynomial be done from its roots?  
a) poly(r), r is a row vector, containing the roots of the polynomial  
b) poly([roots as a coloumn vector])  
c) poly([roots as a row vector])  
d) poly([roots in descending order as a coloumn vector])  
View Answer

Answer: b  
Explanation: To find the roots, one has to store the given roots in a 1\*n column vector, say p, and then extract the co-efficients of the polynomial by typing poly(p). This would return the co-efficients of the polynomial in descending order from left to right.

37. The function to evaluate the value of a polynomial,l for a constant value of the independent variable(say a) in the polynomial is \_\_\_\_\_\_  
a) poly(p,a), p is a row vector  
b) polyder(p)  
c) polyint(p)  
d) polyval(c,a), c is a row vector  
View Answer

Answer: d  
Explanation: polyder(p)and polyint(p) produces the differentiation and integration of the polynomial p. Polyval(c,a) is the correct form of the function to evaluate the value of a polynomial whose independent variable is a. The value of a has to be provided first before writing the function.

MATLAB Questions and Answers – Managing Variables

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Managing Variables”.

38. What will be the output when the following code is written in MATLAB?

u=sin(10);v=pi;whos

a) u and v are double with 8 bytes  
b) u and v are symbolic objects  
c) error  
d) u and v are double arrays  
View Answer

Answer: a  
Explanation: ‘sin 10’ and ‘pi’ are numeric values which will be generated as double data type in MATLAB.

Output: Name Size Bytes Class Attributes

u 1x1 8 double

v 1x1 8 double

39. What is the disadvantage of the whos function in MATLAB?  
a) It does not show the values of the variable  
b) It does not show the size of the variable  
c) It does not show the class of the variable  
d) It does not show the name of the variable  
View Answer

Answer: a  
Explanation: whos returns the name, size, bytes and class of the variables used in the current program. To get the value of any variable, we need to type the variable and press Enter.

40. What will be the output of the following code?

A=100; if(A>99) clear A; end

a) A never gets stored in MATLAB  
b) A is first stored and then removed from workspace  
c) Error  
d) A is retained in the workspace  
View Answer

Answer: b  
Explanation: A will be stored due to the first line of code. When the if structure is invoked, the variable will be deleted from the program due to the clear function.

41. What is the replacement for the whos function?  
a) Workspace window  
b) Command window  
c) Current folder window  
d) Remembering all the variables used  
View Answer

Answer: a  
Explanation: The workspace window constantly gets updated with inclusion of any variable in the program. It shows the Value, Size, Bytes, Class and many other attributes of the variables used. Hence it is more useful than the whos function.

42. What does the Workspace show?  
a) Attributes of variables, functions from command window  
b) Attributes of variables, script files from command window  
c) Attributes of variables, script files, functions from command window  
d) Attributes of variables from command window  
View Answer

Answer: c  
Explanation: The workspace window shows the attributes of variables, script files, functions from the command window for an ongoing program. It is more descriptive than the whos function.

43. What is the output of the following code?

a=10; b=10; c=’pi’; whos

a) The output will show all double variables  
b) The output will show a and b as double and c as symbolic object  
c) The output will show a and b as symbolic object and c as char  
d) The output will show a and b as double variables and c as char variables  
View Answer

Answer: d  
Explanation: ‘a’ and ‘b’ will be stored as double variables with a=10 and b=10 while c will be stored as a character variable as c=pi.  
Output:

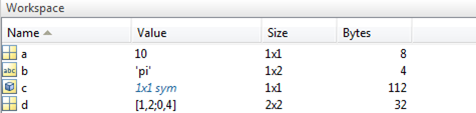
Name Size Bytes Class Attributes

a 1x1 8 double

b 1x1 8 double

c 1x2 4 char

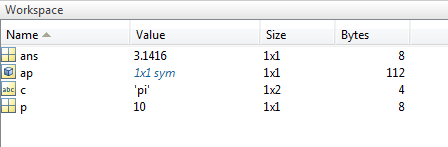
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44. From the following desktop view of workspace, choose the correct code.  
[](https://www.sanfoundry.com/wp-content/uploads/2018/12/matlab-questions-answers-managing-variables-q7.png)  
a) a=10;b=’pi’;syms c; d=[1,2;0;4];  
b) a=10;b=’pi’;syms c; d=[1,2;0,4];  
c) a=10;b=pi;syms (c); d=[1,2;0,4];  
d) a=10;b=’pi’;syms c; d=[1,2;0,4];  
View Answer

Answer: a  
Explanation: ‘b’ is a character variable, within inverted commas. ‘a’ is a double variable. ‘c’ is a symbolic object while ‘d’ is a 2\*2 matrix. The declaration of the variables is in accordance to the following code:  
a=10;b=’pi’;syms c; d=[1,2;0;4];

8. What is the size of double and symbolic variables holding integer constants?  
a) 8 bytes and 16 bytes  
b) 16 bytes and 112 bytes  
c) 32 bytes and 26 bytes  
d) 23 bytes and 112 bytes  
View Answer

Answer: a  
Explanation: The size of double variables holding integer constants is 8 bytes. The size of symbolic variables is 112 bytes. These are predefined data type sizes in MATLAB.

45. Choose the correct option as an inference from the following workspace view.  
[](https://www.sanfoundry.com/wp-content/uploads/2018/12/matlab-questions-answers-managing-variables-q9.png)  
a) ‘ans’, ‘p’ and ‘ap’ are double variables  
b) ‘ans’ and ‘p’ are double variables while ‘c’ is a character variable  
c) ‘ap’ is symbolic object, ‘c’ is a double variable  
d) ‘c’ is a symbolic character  
View Answer

Answer: b  
Explanation: It is to be noted that ‘ans’ and ‘p’ are double integer variables, ‘c’ is a character variable while ‘ap’ is a symbolic object.

46. What is the difference between who and whos command?  
a) The former shows the names of the variables being used while the latter shows the details of the variables in the ongoing program  
b) The latter shows the the names of the variables being used while the former shows the details of the variables in the ongoing program  
c) No difference at all  
d) There is no such function as who and whos  
View Answer

Answer: a  
Explanation: The function ‘who’ shows the names of the variables used. The function ‘whos’ shows the details of the variables in the ongoing program but it doesn’t show the attributes of the variables.

47. What is the conclusion from the following code?

>>whos

Name Size Bytes Class Attributes

ans 1x1 8 double

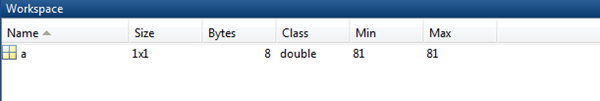
ap 1x1 112 sym

c 1x2 4 char

p 1x1 8 double

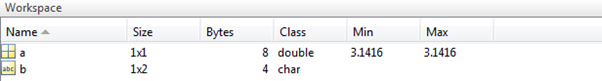
a) The function ‘whos’ doesn’t show the values of the variables being used  
b) The value of each variable is 0  
c) The function ‘who’ is more effective than ‘whos’  
d) Nothing can be concluded  
View Answer

Answer: a  
Explanation: The function ‘whos’ doesn’t show the values of the variables being used. Instead it will display the size, bytes and class of the variable in use. It is no useful than the function ‘who’ since it only shows the name of the variable used, when invoked.

48. What are Max and Min in the Workspace shown below?  
[](https://www.sanfoundry.com/wp-content/uploads/2018/12/matlab-questions-answers-managing-variables-q12.png)  
a) They show the maximum and minimum value of the variable  
b) The show the maximum and minimum length of the variable  
c) They show the maximum and minimum value present in an array  
d) They show the median and mode of the variable  
View Answer

Answer: c  
Explanation: The columns ‘Min’ and ‘Max’ show the maximum and minimum values present in a variable. So, if the variable is an array, the ‘Min’ and ‘Max’ may or may not be same. Here, a is a variable having a single constant value so they are same.

49. How would you express a pi as a character and an integer? Choose the correct code.  
a) a=pi;b=’pi’;  
b) a=22/7; b=pi;  
c) a=3.1415; b=22/7;  
d) a=3.1429;b=’pi’;  
View Answer

Answer: a  
Explanation: After entering the code in MATLAB, the workspace view is:  
[](https://www.sanfoundry.com/wp-content/uploads/2018/12/matlab-questions-answers-managing-variables-q13.png)  
A character variable is stored by declaring the character value within a pair of single inverted commas. An integer variable is stored by simply declaring the variable with the integer value. pi is stored in MATLAB as an integer value itself of 3.1416.

MATLAB Questions and Answers – Errors in Input – 1

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Errors in Input – 1”.

50. What will be the output of the following code?

A=sim(pi)+cod(pi)

a) A=-1  
b) Undefined function or variable ‘cod’  
c) Undefined function or variable ‘sim’  
d) Undefined function or variable ‘sim’ and ‘cod’  
View Answer

Answer: c  
Explanation: ‘sin’ and ‘cod’ functions have been written in place of ‘sine’ and ‘cos’ functions. If there are more than 1 error in a line of code, MATLAB will return only the first error it comes across. It will neglect the rest of the code. So it ignores the error ‘cod’.

51. What is the output of the following code?

A=[1 2 3]; A^2;

a) [1 4 9]  
b) A= 1 4 9  
c) A= [1, 4, 9]  
d) Inputs must be a scalar or a square matrix  
View Answer

Answer: d  
Explanation: Multiplying a column or row vector with a scalar or another vector requires the code to be “A.^2” in place of “A^2”. If this line is replaced, the output will be: A=1 4 9  
Output: Inputs must be a scalar and a square matrix.  
To compute element wise POWER, use POWER (.^) instead.

52. What is the output of the following code?

A=[1 1; 1 1]; A^2

a)

A = 2 2

2 2

b)

A = 1 1

1 1

c) Error using ^ To compute element wise POWER, use POWER (.^) instead  
d) No output  
View Answer

Answer: a  
Explanation: ‘A^2’ implies we are multiplying A with A, A being a square matrix. So the answer follows. If the line of code was ‘A.^2’, the answer would be a square matrix, such that aij=2 of order 2\*2.  
Output: Cursor shifts to the next line, waiting for a new line of code.

53. What is the output of the following code?

A=[1 2]; B=[1 4]; c=A\*B;

a) c= [1 8]  
b)

c = 1

8

c) Inner Matrix dimensions must agree  
d) No output since we have closed the line of code with a semicolon  
View Answer

Answer:c  
Explanation: Multiplication of two row vectors is possible if we use the ‘.\*’ operator. If B was a 1\*2 column vector, the multiplication would have been possible resulting in a multiplication of vectors and generating c=9 as output.

54. What is the output of the following line of code?

t=0:pi/8:4pi;

a) No output as we’ve closed the line of code with a semi-colon  
b)

1 2 3 4 5 6 7 8 9

0 1.5708 3.1416 4.7124 6.2832 7.8540 9.4248 10.9956 12.5664

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c) Error: Unexpected MATLAB expression  
d) Undefined function or variable ‘pi’  
View Answer

Answer: c  
Explanation: Multiplying an integer with a variable which contains a constant value requires the use of ‘\*’. So 4pi should be ‘4\*pi’. ‘pi’ is predefined in MATLAB as 3.1416.

55. What is the error in the code?

a=[[1;2];(2,3)]

a) Third brackets are wrong  
b) The semicolon within the second third brackets  
c) There is no error  
d) Error: Expression or statement is incorrect–possibly unbalanced  
View Answer

Answer: d  
Explanation: A matrix cannot have parentheses within itself. Any integer, whether to be included row wise or column wise, is to be written within a third bracket.

56. What is the output in the following code?

a=[[1;22],[53;9],[13;2]];

a) There is no output  
b) Columns are to be introduced by placing semi-columns  
c) Dimensions of matrices being concatenated are not consistent  
d)

a = 1 53 13

22 9 2

View Answer

Answer: a  
Explanation: The a matrix will be stored in the workspace as

a = 1 53 13

22 9 2

There is no error and there will be no output since the dimensions of matrices being concatenated are constant.

57. What is the difference between the two codes?

a> P=[91,’pi’];

b> Q=[91,pi];

a) Code a initialises P as a character array while code b initialises Q as an integer array  
b) Both P and Q will be integer arrays  
c) Code b initialises P as a character array while code a initialises Q as an integer array  
d) Both P and Q will be character arrays  
View Answer

Answer: a  
Explanation: One should keep in mind that once while declaring a vector, a character is introduced with a pair of single-inverted commas, the vector becomes a character array. So it will show different answers while doing algebraic operations on it.  
Output:

For a> P= [pi

b> Q= 91 3.1416

58. What is the output of the following code?

P=tan90

a) Inf  
b) P = Inf  
c) P = -1.9952  
d) Undefined function or variable ‘tan90’  
View Answer

Answer: d  
Explanation: To evaluate numerical value of any trigonometric expression, the angles should be placed within a pair of parentheses. That’s why the above code generates an output.

59. What is the output for the following code?

if(a>b) p=9;

a) No output  
b) Never will there be an output  
c) a, b, p are not initialized  
d) p=9  
View Answer

Answer: b  
Explanation: Any control structure or loop structure has to be terminated with the code ‘end’. Else the cursor will keep on demanding further lines of codes. This is why, for the above code, the output will never appear.

60. What is the output of the following code?

P=sin[90];

a) P = 1  
b) P = .8932  
c) P = .99999  
d) Error  
View Answer

Answer: d  
Explanation: The input to the sin command has to be within parentheses. Since the input is given within [], it leads to an error.

61. What is the output of the following code?

system(cmd)

a) Opens command prompt  
b) Opens command prompt in a separate window  
c) Opens command prompt in MATLAB  
d) Error  
View Answer

Answer: d  
Explanation: The input to the system command has to be within ‘’. Since, the cmd command has been written without it, it leads to an error.

62. Why is the output, as shown, ‘poe’?

>>clipboard(‘paste’, ‘Do re Mi fa’)

ans =

‘poe’

a) ‘poe’ was initially in the clipboard  
b) Cannot be determined  
c) Error  
d) The text gets changed  
View Answer

Answer: a  
Explanation: If we’ve used the clipboard command to copy a string before, we need to paste it already. We cannot use the ‘paste’ keyword to paste a new string if there’s already a string in our clipboard.

63. What is the output of the following code?

clipboard('cut','Do re Mi fa')

a) Error due to syntax  
b) Error due to command  
c) Error due to cut  
d) Cuts the portion of a text where ‘Do re Mi fa’ is written  
View Answer

Answer: c  
Explanation: The clipboard command allows the user to only copy and paste. Hence, we get an error. It can’t be used to cut a portion of a text.

MATLAB Questions and Answers – Errors in Input – 2

This set of MATLAB Questions and Answers for Freshers focuses on “Errors in Input – 2”.

64. What is the output of the following code?

isvector((49 32));

a) Error in ()  
b) Error due to absence of comma  
c) Error due to command  
d) Logical 1  
View Answer

Answer: a  
Explanation: The input to the command isvector() should be placed within [] always. If the input is a single element, it can be placed within (). But since there are two elements, the above code will give an error.

65. What is the output of the following code?

clipboard('Do re Mi fa','copy')

a) Error in hierarchy  
b) Copies the input text to the system clipboard  
c) Replaces any text, in the clipboard, with the input text  
d) Syntactical Error  
View Answer

Answer: a  
Explanation: The ‘copy’ input should be before the text which we want to copy to our system clipboard. Since it has been placed after the text, we get an error.

66. What is the output of the following code?

commandhistory[]

a) Error  
b) Shows command history  
c) Shows the previous command used  
d) Prints all the commands used for the current session  
View Answer

Answer: a  
Explanation: We cannot give [] after the following command. We may give parentheses but it’s not needed though. Here, the output will be an error eventually.

67. What is the output of the following code?

pd=makedist('Uniform','Lower',3)

a) Error in giving limits  
b) A uniform distribution with lower limit 3 and upper limit Infinity  
c) Error in syntax  
d) Error due to the command  
View Answer

Answer: a  
Explanation: The default limit, if a limit isn’t mentioned are, 0 for lower limit and 1 for upper. Here, we’ve only mentioned the lower limit as 3 and the upper limit gets initialized as 0. This causes a typical error since there can’t be a uniform distribution whose lower limits is greater than the upper limit.

68. What is the output of the following code?

p=input('');

po

a) ‘po’ gets assigned to p  
b) Error in the input  
c) Error due to syntax  
d) Cannot be determined  
View Answer

Answer: b  
Explanation: The given input, po, results in an error. If after the input() command, we want to give a text input, we need to include the input within ‘’. Since we’ve not given po within ‘’, it results in an error.

69. What is the output of the following code?

p=input[''];

a) Asks for an input  
b) Error in the input  
c) Error due to syntax  
d) Cannot be determined  
View Answer

Answer: c  
Explanation: There is a syntactical error in the above code. This is because we’ve given [] after the input command but the syntax of the input command requires us to put parentheses after it. This leads to an error.

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70. What is the output of the following code?

pd=makedist('Uniform','-Inf',lower,'Inf',upper)

a) Makes a uniform distribution ranging from -Inf to Inf  
b) Error due to Inf  
c) Error due to syntax  
d) Logical Error  
View Answer

Answer: c  
Explanation: Before mentioning the lower limit for the uniform distribution, we need to mention ‘lower’. Even though we will receive an error, due to Inf, if the aforementioned syntax is followed- that will be the 2nd error MATLAB observes while the first error is the fact that lower is mentioned after defining the lower limit. This leads to an error.

71. What is the output of the following code?

sumsqr([1 2; 'NaN' 4])

a) 21  
b) Error due to NaN  
c) Error due to ‘NaN’  
d) 9  
View Answer

Answer: c  
Explanation: When we write NaN within ‘’, we declare it as a character. Now, the sumsqr command can only take integers as input. Since there is a character0 it results in an error. Hence, the output is option c and not b. If it was not placed within ‘’, it would’ve been ignored and the output would’ve been 21.

72. The uniform distribution can range from -infinity to 0 or 0 to Infinity but not from -infinity to infinity.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: The uniform distribution can typically range from (-Inf,Inf), i.e. the lower and upper limits of the distribution cannot be less than or -Infinity or more than Infinity respectively. Hence, this leads to an error.

73. If a character input is given to a command which only takes integers, it’ll always give an error.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: MATLAB is very sensitive to the nature of inputs defined for a particular command. If the input to a command has to be an integer but we give a character input, it’ll give an error.

MATLAB Questions and Answers – Variables and Assignments

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Variables and Assignments”.

74. Which function is preferable to find the magnitude of a complex number?  
a) abs()  
b) sqrt()  
c) cart2pol()  
d) MATLAB does not support complex arguments  
View Answer

Answer: a  
Explanation: In the function sqrt(), we have to write the polynomial which shows the sum of squares of the real and imaginary part within the parentheses. But in abs(), we only have to enter the variable which we’ve used to define the complex number. So abs() is more preferred.

75. Which is an escape sequence constant?  
a) Esc  
b) /n  
c) \b  
d) nargout  
View Answer

Answer: c  
Explanation: An escape sequence character constant is used in functions which are used to show output. ‘\b’ means backspace. ‘Esc’,‘/n’, are strings. ‘nargout’ is a pre-defined function in MATLAB.

76. All MATLAB computations are done in  
a) Single Precision  
b) Double Precision  
c) Linear accuracy  
d) Multi-level precision  
View Answer

Answer: b  
Explanation: MATLAB stores any integer variable as a double data type of 64 bits. For single precision, the function is ‘single()’ but if not mentioned, the value will be stored in double precision.

77. Which symbol is used to initialise a variable?  
a) =  
b) ->  
c) ==  
d) init  
View Answer

Answer: a  
Explanation: The symbol, ‘=’, is used to initialise a variable with a particular data type. ‘==’ checks whether the left hand side is equal to its’ right hand side. ‘init’ is a separate function in MATLAB.

78. Choose the correct option.  
a) any() shows all the elements in a matrix while all() shows every element of a vector  
b) any() is ‘true’ if elements in a vector is zero  
c) all() is ‘true’ if every element in a vector is non zero  
d) all() is ‘true’ if every element in a vector is 0  
View Answer

Answer: c  
Explanation: ‘any()’ and ‘all()’ are pre-defined functions in MATLAB. The function ‘any()’ returns 1 if every element of the vector, mentioned within the parentheses, is non-zero. The function ‘all()’ returns 1 if any element of the vector is non-zero.

79. What operator helps in the transpose of a matrix?  
a) “ .’ ”  
b) “ ‘ ”  
c) “./ ”  
d) “ .\ ”  
View Answer

Answer: a  
Explanation: ‘ .’ ‘ is used to get the transpose of a matrix. ‘ ‘ ‘ is used to get the complex conjugate transpose of a matrix. ‘ ./ ’ is used for the right division while the operator, ‘ .\’ is used for left division.

80. What is the difference between the expressions (9\*1-8) & (9-1\*8)?  
a) Computational difference  
b) Final results are different  
c) No difference  
d) Cannot be determined  
View Answer

Answer: a  
Explanation: MATLAB follows a precedence of operators while doing any computation. So (9\*1-8) is done like this: 9\*1-8=9-8=9. But (9-1\*8) is done like this: 9-1\*8=9-8=1. Even though the answers are same, there is a computational difference between evaluation of the two expressions in MATLAB.

81. What is the output of the expression

(2\*9\*Inf)+(9-1\*Inf)

a) Inf  
b) Error  
c) Incomprehensible  
d) NaN  
View Answer

Answer: d  
Explanation: ‘NaN’ is a pre-defined variable in MATLAB. Whenever we try to evaluate an expression, if the expression contains sub-expressions which evaluate to infinity, the output produced is NaN. This denotes that the evaluation will not lead to number comprehensible by MATLAB.

82. The expression cos(90) is equal to1 in MATLAB.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: Any argument within the parentheses of the functions ‘sin()’, ‘cos()’ are taken to be in radians. If the argument is to be processed in degrees, the function is modified as sind() and cosd().

83. Evaluate the expression:

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a=9/1\*5/1; b=a\*a/a\*a; c=sind(30)+1/2; d=1-c; e=a+b\*c-d

a) 2045  
b) 2070  
c) Error since sind() is a wrong function  
d) 0  
View Answer

Answer: b  
Explanation: Following precedence of operators: ‘\*’ > ’/’ > ‘+’ > ’–‘  
a=9\*5=45 ; b=a2/a\*a=a\*a=a2=2025 ; c=1/2+1/2=1 ; d=1-c=0 ;  
e=45+2025\*1-0=45+2025-0=2070-0=2070.  
Output: 2070

MATLAB Questions and Answers – Solving Equations

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Solving Equations”.

84. What is the syntax to solve simultaneous equations easily?  
a) solve[“equation-1”,”equation-2”];  
b) sol[“equation-1” “equation-2”];  
c) sol[‘equation-1’‘equation-2’];  
d) solve[‘equation-1’,‘equation-2’];  
View Answer

Answer: d  
Explanation: To solve equations simultaneously, we need to place the equations within the pre-defined MATLAB function ‘solve’ as string arguments within a pair of single inverted commas and separated by a comma. The function sol can also be used but the syntax within the third bracket is same. So, solve[‘equation-1’,‘equation-2’]; is correct.

85. An employer has to minimize the number of lines in a program while writing the code for a purpose. If the purpose is to find the root of the following equation, which function is to be used?

x2-4x+3=0

a) polyval()  
b) solve[]  
c) sol[]  
d) roots([])  
View Answer

Answer: d  
Explanation: The function polyval() returns the value of a dependent variable by taking arguments of the independent variable. ‘sol[]’ returns the values in a vector form but does not display the exact values. If we use ‘solve[]’, we have to write the entire equation in a string. ‘roots()’ allows the user to only insert the coefficients of the polynomial and it will return the roots of the equation formed by the coefficients entered.

Output: roots([1 -4 3]

ans=1

3

86. What is the difference between sqrt(10) and sqrt(sym(10))?  
a) There is no difference  
b) sqrt(sym(10)) is incorrect  
c) There is no function as sqrt  
d) sqrt(10) returns exact value while sqrt(sym(10)) returns 10(1/2)  
View Answer

Answer: d  
Explanation: ‘sqrt()’ is a predefined function used to find a square root of large numbers to reduce the complexity of equation. sqrt(sym(10)) introduces 10 as a symbolic object to the MATLAB workspace.  
Thus it will return 10(1/2) as a symbolic expression and won’t divulge the exact root. This helps often to reduce an equation before increasing program complexity in MATLAB.

87. The solve[] command can do which of the following things?  
a) Produce the exact solution  
b) Produce a symbolic solution  
c) Produces exact roots  
d) Produces complex roots  
View Answer

Answer: b  
Explanation: The solve[] function is an inbuilt function to generate the solutions of one or more than one equations. But the result is always produced in symbolic form. So, even if the answer contains the value of square root of 5, solve[] will return the value as sqrt(sym(5)).

88. What should be the output for the following code?

t=linspace(0,10);fzero(inline('t+t2'), 5);

a) Nan  
b) -0.000000000000000000000000117191203927370461282452866337  
c) -1.1719e-25  
d) fzero is not a function  
View Answer

Answer: a  
Explanation: While introducing the function within fzero, there should be a zero crossing point near the value where we expect a solution. But in the above code, it is observable that there are no zero crossing points near 5. Thus MATLAB will return an error in computation which is a NaN value that has disrupted the process of the function fzero().

89. A student has to find the solution of an equation cos(x)=1/2. She has to write the program such that exact values are shown at output. Which of the following codes would help her?  
a) syms x;eqn = cos(x) == 1/2;vpa( solve(eqn,x))  
b) syms x;eqn = cos(x) == 1/2;solve(eqn,x)  
c) vpa(solve(‘cos(x)=1/2’))  
d) syms x;eqn = cos(x) = 1/2;vpa(solve(eqn,x))  
View Answer

Answer: c  
Explanation: To find the exact value of non-integer constants, we use the function ‘vpa()’. MATLAB won’t understand sin(x)=1 as an equation until we initialise x as a symbolic variable. syms x;eqn = cos(x) == 1/2;vpa( solve(eqn,x)) would’ve generated the same answer but it has 3 lines while vpa(solve(‘cos(x)=1/2’)) has only 1 line. Once we introduce the variable x as a string, MATLAB understands that it is a symbolic object.

Output: syms x;eqn = cos(x) == 1/2;vpa( solve(eqn,x))

ans = -1.0471975511965977461542144610932

1.0471975511965977461542144610932

90. Find the error in the following code?

Predicted output: (b + (b2 - 4\*a\*c)(1/2))/(2\*a)

(b - (b2 - 4\*a\*c)(1/2))/(2\*a)

Code: solve (b\*x2 + c\*x + a == 0)

Present output: -(c + (c2 - 4\*a\*b)(1/2))/(2\*b)

-(c - (c2 - 4\*a\*b)(1/2))/(2\*b)

a) Predicted output is same as present output after math magic  
b) solve(a\*x2 + b\*x + c == 0)  
c) vpa(solve(a\*x2 – b\*x + c == 0))  
d) solve(a\*x2 – b\*x + c == 0)  
View Answer

Answer: d  
Explanation: MATLAB returns variables in the order we enter them. Now, both option (a\*x2 + b\*x + c == 0) and (a\*x2 – b\*x + c == 0) are okay but the predicted output is returned in symbolic form. We see that 1⁄2 is written as 0.5. Thus vpa is not to be written in the line of code, since it returns exact values and not symbolic values.

91. Which program can help to solve the following differential equation?

dy/dx=b\*y y(0)=5;

a) syms y(t) a;equn = diff(y,t)==b\*y;cnd=y(0)==5;ySol(t)=dsolve(equn,cnd)  
b) syms y(t) a;eqn = diff(y,t) == a\*y;ySol(t) = dsolve(eqn,(y(0)=5);  
c) syms y(t) a;eqn=diff(y,t)=a\*y;cond=y(0)==5 sol(t)=dsolve(eqn,cond);  
d) sym y(t) a; eqn=diff(y,t)==a\*y;cond=y(0)==5;sol(eqn,cond);  
View Answer

Answer: a  
Explanation: To solve an ordinary differential equation using MATLAB, we use the syntax dsolve(eqn,cond). The cond variable has to be written in the format ‘cond= indep variable(instant for condition)== conditional value. This cond has to be predefined before applying it in the dsolve function.

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92. What happens if dsolve does not return any numerical solution?  
a) The equations have no solution  
b) The equations have a trivial solution  
c) The equations have infinite no. of solutions  
d) The equation has to be solve separately  
View Answer

Answer: d  
Explanation: We have to solve the differentiation numerically. To do it in MATLAB, we need to use ode45 after converting the differential equation to a system of first order differential equation.

93. If solve does not return any solution, what does it imply?  
a) The equation has no definite solution  
b) The equation has a solution for a specific interval  
c) The equation may be solvable but the function ‘solve’ cannot produce a solution  
d) There is no function ‘solve’  
View Answer

Answer: c  
Explanation: It may so happen that an equation may not be solvable but due to some mistake, the function solve0 has encountered an argument which is an equation whose Left hand side could never be equal to the right hand side. It may also happen that some separate solution is present but the function cannot produce the solutions. We need to check separately for such cases by applying some other methods of solving equations though, generally, this does not happen.

MATLAB Questions and Answers – Vectors and Matrices – 1

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Vectors and Matrices – 1”.

94. Vectors depend upon brackets while scalars don’t.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: To declare a scalar, we only need to declare a variable in MATLAB with a constant expression. We don’t need to include the expression with any kind of brackets. But, we need to put the expressions within a bracket for row or column vector.

95. How many errors will MATLAB show if the following code entered?

A=[1;2;3]; B=[1 2]; C=A.\*B;D=C\*A;

a) 2  
b) 1  
c) No error  
d) 4  
View Answer

Answer: b  
Explanation: There are two errors here. Firstly, vector dimensions should be the same for A and B to compute the C matrix. Secondly, vector multiplication is done by the symbol ‘.\*’. So, D=C\*A will give an error but MATLAB as soon as it encounters the first error, it will stop compiling the code and return the first error invoked. Hence the number of errors MATLAB will show is 1.

96. To see the sub-matrix with aij for 2<=i<=4 and 1<=j<=2 of a matrix a, of order 5\*6, which code is used?  
a) a(2;4,1;2)  
b) a(2,4:1,2)  
c) a(2:4,1:2)  
d) a(2,4;1,2)  
View Answer

Answer: c  
Explanation: To see the sub-matrix of a matrix a, of any order (here 5\*6), the following syntax is used: matrix name(2:4,1:2). Here, ‘2:4’ mentions rows from 2 to 4 while ‘1:2’ mentions the columns from 1 to 2. This is a pre-defined form of viewing or making a sub-matrix of a matrix in MATLAB.

97. Which code shows the use of ellipsis in MATLAB?  
a)

A = [1 2 3;...

5 6 7]

b) A = [1;2’3]  
c)

A = [1;2..

3;4]

d) A = [1:2..:2]  
View Answer

Answer: a  
Explanation: Ellipsis is a method of continuing lines in MATLAB to fit in a matrix if the length is very big to be in a row. The correct syntax for ellipsis while other options will generate an error of invalid input character and unexpected MATLAB operator respectively.

A = [1 2 3;...

5 6 7]

It is another form of continuing lines but that form is called carriage return.

98. What is the symbol used to evaluate the transpose of a vector?  
a) “ ^ ”  
b) “ \* ”  
c) “ ‘ ”  
d) “ ~ ”  
View Answer

Answer: c  
Explanation: It is pre-defined in MATLAB that if we want to find the transpose of a vector, we will have to use the “ ‘ ” symbol following the vector or the vector name. “ ^ ” is used to raise the power of a variable while “ \* ” is used for multiplication purposes. “ ~ ” is used to denote not-equal to the operator which is “ !~ ”. Hence option “ ‘ ” is correct.

99. What is the advantage of MATLAB over other computing software with matrix dimensions?  
a) No advantage  
b) Real time pre-defined memory allocation  
c) Real time user-defined memory allocation  
d) Matrix operations are easily computed  
View Answer

Answer: c  
Explanation: In many softwares, while declaring a matrix- the user has to assign a size of the matrix before entering any values to it. But in MATLAB, the user does not need to mention any size; mentioning the number of elements is enough for MATLAB to determine the size of the matrix required.

100. Which code will help to concatenate two matrices easily in 2 dimensions?

Matrices: A = 1 2 B = 1 2

3 4 3 4

a) cat(A,B)  
b) cat(2,[1 2;3 4], [1 2; 3 4])  
c) cat(2;[1 2,3 4]; [1 2, 3 4])  
d) cat([1 2;3 4], [1 2; 3 4])  
View Answer

Answer: b  
Explanation: The syntax to concatenate two matrices along a specific dimension, d, is cat(d,A,B). Now, we don’t have to define the two matrices explicitly if we don’t need to. We can enter the matrices, within the cat(), as we declare a matrix. MATLAB would check for the syntax of matrix declaration and concatenate the matrices. To declare matrix A, the code is A=[1 2;3 4] where a “;” signifies an increase in rows- same goes for declaring B.

101. Which code can be used for changing the dimensions of a matrix as follows?

Input matrix: 1 2 3 Output matrix: 1 4 2 5 3 6

4 5 6

a) reshape([1,2,3;4,5,6],1,6)  
b) reshape([1,2,3;4,5,6];1;6)  
c) reshape([1,2,3;4,5,6]:1:6)  
d) reshape([1,2,3;4,5,6],6,1)  
View Answer

Answer: a  
Explanation: There is a pre-defined function in MATLAB which allows the user to change the dimensions of a matrix without much to be done. The function is ‘reshape(A,row,column)’ where A is the original matrix, row denotes desired rows while column denotes desired columns. Now, the matrix A is defined in MATLAB as A=[1,2,3;4,5,6], but we don’t need to do it explicitly. We can put it directly within the function and henceforth put the desired row and columns required( here 1 and 6).

102. What is the function used to multiply a matrix, A, with itself n times?  
a) mtimes(A,n)  
b) ntimes(A,n)  
c) mtimes(n,A)  
d) mtimes(A^n)  
View Answer

Answer: a  
Explanation: The syntax of the function to multiply a matrix with itself n times is ‘mtimes(A,n); where A is the matrix itself and n is the number of times the matrix need to be multiplied to itself. There are no function ntimes() in MATLAB and the rest of the options show incorrect syntax.

103. Which code is used to solve the system of linear equation: A.(x2)= B?

A = 1 4 B = 1 2

1 4 1 2

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a) sqrt([1 4;1 4]/[1 2;1 2])  
b) Inf  
c) sqrt([1 4,1 4]/[1 2,1 2])  
d) sqrt[(1 4;1 4]/[1 2;1 2)]  
View Answer

Answer: a  
Explanation: It is seen from the equation that if we divide B by A and find the square root of the result, we will get the values of x in a vectored form. But, the matrices are singular matrices. So determinant value of both matrices is 0. Hence the output will be as follows

Output: ans=

0.0000 + Infi Inf + 0.0000i

0.0000 + Infi Inf + 0.0000i

104. Which operator set is used for left and right division respectively?  
a) .\ and ./  
b) ./ and .\  
c) Left division and right division is not available in MATLAB  
d) / and \  
View Answer

Answer: a  
Explanation: In MATLAB, if we want to perform left division of two matrices we need to write a.\b while for the right division we have to write a./b. for left division respectively.

105. If A and B are two matrices, such that a./b=b.\a, what is concluded?  
a) Nothing special  
b) A = AT  
c) A = A-1  
d) A = A  
View Answer

Answer: a  
Explanation: a./b is same as b.\a. In the former, we are performing left division so b is divided by a. In the latter, we are performing right division so b is again divided by a. Thus, it is obligatory that a./b=b.\a. Hence, nothing special can be said about the two matrices A and B.

106. If a./b=(b./a)T, what can be concluded about the matrices a and b?  
a) a = bT  
b) a = b-1  
c) a = b’  
d) nothing special  
View Answer

Answer: a  
Explanation: ‘a./b’ means that elements of a are divided b while ‘b./a’ means that the elements of b are divided by a. If the result of the latter is the transpose of the former, it suggests that a=bT. This is because element-wise division is performed by the operator ‘./’. So the resultant matrix is a direct symbolisation of the nature of occurrence of elements in either matrix. Hence option a=bT is correct.

107. What is the difference between a[] and a{}?  
a) a[] is for empty cell array while a{} is for empty linear array  
b) a[] is for empty linear array while a{} is for empty cell array  
c) No difference  
d) a[] is an empty row vector while a{} is an empty column vector  
View Answer

Answer: b  
Explanation: To initialise a cell array, named a, we use the syntax ‘a{}’. If we need to initialise a linear array, named a, we use the syntax ‘a[]’. This is pre-defined in MATLAB.

108. Choose the function to solve the following problem, symbolically, in the easiest way.

3x+y=5 and 2x+3y=7

a) linsolve(x,y) where x and y are the co-efficient and result matrix respectively  
b) solve(x,y) where x and y are the co-efficient and result matrix respectively  
c) sol(x,y) where x and y are the co-efficient and result matrix respectively  
d) the equations are not solvable  
View Answer

Answer: a  
Explanation: ‘linsolve’ performs LU factorization method to find the solution of a system of equation AX=B. The syntax is ‘linsolve(x,y)’ where x is the co-efficient matrix while b is the result matrix. The function solve () could’ve been used, but the expressions within parentheses should be the equations, within apostrophes, declared as strings. Same for sol. Hence, option linsolve(x,y) where x and y are the co-efficient and result matrix respectively is correct.

Output: linsolve([3,1;2,3],[5;7]

ans=

1.1428571428571428571428571428571

1.5714285714285714285714285714286

MATLAB Questions and Answers – Vectors and Matrices – 2

This set of MATLAB Interview Questions and Answers for freshers focuses on “Vectors and Matrices – 2”.

109. What is the output of the following code?

A=[1 2 3..

];

a) The output is suppressed  
b) A row vector  
c) A row vector concatenated with a null matrix  
d) Error  
View Answer

Answer: d  
Explanation: The above code will give in an error due to the fact that ellipsis hasn’t been done properly. There should’ve been a semi-colon after 3 and we need to give 3 dots. Thereafter, option “the output is suppressed” is actually correct because the output would essentially be suppressed while a row vector A gets stored in the workspace.

110. What is the output of the following code?

A=[1 2 a..;

];

a) Error due to a  
b) Error due to A  
c) Error due to [];  
d) Error due to ;  
View Answer

Answer: a  
Explanation: Typically, the row vector A contains integers as the first element and thus the entire array becomes an integer vector. But the inclusion of a results in an error since a is a character. If, however, a was written within ‘’, there wouldn’t have been a error.

111. What is the output of the following code?

A=[1 2 ‘a’;…

];

a) Error due to ‘a’  
b) Error due to ‘…’  
c) Error due to []  
d) ‘a’  
View Answer

Answer: d  
Explanation: MATLAB would show such kind of an output since the A vector gets defined as a character array when a gets defined within ‘’. The syntax for ellipsis is correct and there is no error.  
Output: ‘a’

112. What is the output of the following code?

A=[1 2 ‘a’;…

‘f’ ‘q’ ‘w’];

a) A 2\*3 character array  
b) A 3\*2 character matrix  
c) A 3\*2 character vector  
d) A 2\*3 character vector  
View Answer

Answer: b  
Explanation: The above code performs ellipsis to concatenate two matrices vertically. Thus, the output is a 2\*3 matrix since the dimension of each vector, it concatenates, is 3. Now, the presence of a character makes the vector character vectors.

113 What is the output of the following code?

A=[1 2 ‘a’;…

‘f’ ‘q’ ‘w’;…

]];

a) Syntax Error  
b) A 2\*3 character matrix  
c) The concatenation of 2 vectors, vertically, with size 3  
d) Cannot be determined  
View Answer

Answer: a  
Explanation: There are two ]] at the end. This leads to an error. This is because only one ] was sufficient to produce A as defined in the option concatenation of 2 vectors, vertically, with size 3. But the usage of an extra ] leads to an error the code.

114. What is the output of the following code?

A=[1 2 ‘a’…;

‘a’ ‘b’ ‘c’;…

];

a) Error in syntax  
b) A 3\*2 matrix of characters  
c) Error due to 1 and 2  
d) Error due to a  
View Answer

Answer: a  
Explanation: Ellipsis has been written wrong in the first line. This is because there has to be 4 ‘.’ for concatenating vectors row-wise. Since we’ve not used 4 dots, it leads to an error.

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115. What is the output of the following code?

A=[1 2 ‘a’….;

‘a’ ‘b’ ‘c’;…

];

a) A 1\*6 matrix  
b) A 6\*1 matrix  
c) Error in the code  
d) Error in ellipsis  
View Answer

Answer: a  
Explanation: In the above code, ellipsis is done to concatenate two vectors row-wise. There is no error in the syntax ad the output A 1\*6 matrix.

116. What is the output of the following code?

clear ALL

a) Clears the workspace  
b) Clears the matrices  
c) Clears the vectors  
d) Clears ALL  
View Answer

Answer: d  
Explanation: The following code clears the variable ALL from the workspace. Notice that it won’t give an error even if the ALL variable is not present in the workspace. The correct option is Clears ALL.

117. All matrices are vectors but all vectors are not matrices in MATLAB.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: If a=[], a is a matrix but not a vector in MATLAB. Hence, the above statement is true.

118. What is the output of the following code?

ismatrix([]);

a) logical 1  
b) logical 0  
c) logical -1  
d) Error  
View Answer

Answer: a  
Explanation: The ismatrix(0 function returns a logical 1 if the size of the input vector is [m,n] where m,n is non-negative. This is important to remember. The size of [] is 0\*0 which is non-negative. Hence, the output is 1.

119. What is the output of the following code?

isvector([]);

a) 1  
b) 0  
c) Syntactical error  
d) Logical error  
View Answer

Answer: b  
Explanation: The isvector() command typically would return a 0 is the input is a null vector. Hence, the output of the above code is 0.

120. If the dimensions of vectors don’t match, the plot command will always give an error.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: In the following case: plot([a],[1:10]), the plot command takes x as [a-1:.2:a+1]. Hence, the above statement is not true. A graph will eventually get plotted.

MATLAB Questions and Answers – Functions

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Functions”.

121. What is the name of a primary function?  
a) Name of M-file  
b) Name of Script File  
c) Name of Help file  
d) Name of Private-File  
View Answer

Answer: a  
Explanation: M-files are text files which can be created in any text editor and it contains the description of a program written for a particular purpose. The program description is mainly a self-contained set of statements which comprises of lines of codes or different kinds of functions. Thus the name of the primary function, where the program description is described, is the M-file.

122. Predominantly, what are the two kinds of errors in MATLAB programs?  
a) Syntax and runtime  
b) Syntax and logic  
c) Logic and runtime  
d) Syntax and algorithmic  
View Answer

Answer: a  
Explanation: Usually, there are two kinds of errors in any programming language. They are syntactical errors and runtime errors. Syntactical errors arise due to the programmer not following language specific syntaxes. Runtime errors rise due to faulty logic decided for the program, the error is called Runtime error.

123. Which code would you use to find the value of the function f?

f(x)=sin(x) + cos (x) + tan (x) at x = π/4

a) sin(45)+cos(45)+tan(45)  
b) sin(pi/4)+cos(pi/4)+tan(pi/4)  
c) sin(45®)+cos(45®)+sin(45®)  
d) sind(45)+cosd(45)+tand(45)  
View Answer

Answer: d  
Explanation: sin(45) would return 0.8509 and sin(pi/4) would return 0.7071. They won’t return exact value of sin 45®. But sind(45) will return 1, this is a pre-defined function in MATLAB. The same goes for cosd(45) and tand(45).

124. If the program demands evaluation of multiple, only decimal, values of the same function, what is the better way amongst the following?  
a) Using anonymous functions or inline functions  
b) Using str2func  
c) Using private functions  
d) Using any function  
View Answer

Answer: b  
Explanation: The function str2cat() returns floating point or decimal expressions for integer values or fractional values. Anonymous functions and inline return decimal values for fractional values but not for integer values. Hence, str2cat is preferable.

125. What are persistent variables?  
a) Variables which retain values between calls to the function  
b) Variables which help in calling a function  
c) Variables which deal with functions  
d) Variables global to the function  
View Answer

Answer: a  
Explanation: Persistent variables help to retain the value which has been produced by a sub-function. They are local to the sub-function but MATLAB reserves permanent storage for them so they might seem like global variables. They are never shown in the workspace so they differ from global variables.

126. Variables need to have same name while being passed from the primary function to the sub-function.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: It is dependent upon the programmer to choose the variable name while establishing a connection between a global and a persistent variable. Essentially, one may choose to keep the variable name same to avoid confusion in case of multiple sub-functions. But it is not necessary if there are a small number of sub-functions.

127. Find the error in below code.

>>f = inline('t.^4', 't'); g = inline('int(h(t), t)', 't');

a) There is no function as inline  
b) The error will be in defining g  
c) The error will be in evaluating a numeric value for the function g  
d) Syntactical error in defining g  
View Answer

128. Which command can be used for single step execution in debugging mode?  
a) dbstep  
b) dbstepin  
c) dbstatus  
d) dbcont  
View Answer

Answer: a  
Explanation: The function ‘dbstep’ helps in single step execution while ‘dpstepin’ helps to enter into a function. The function ‘dbstatus’ helps to list all the breakpoints in a function while ‘dbcont’ helps to continue execution. These are the pre-defined debugging commands in MATLAB.

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129. How do we access a global variable in nested functions?  
a) Simply seek the variable from the primary function  
b) Make a copy of the global variables from the primary function  
c) Declare the variable within the function  
d) Declare the variable as global  
View Answer

Answer: d  
Explanation: Any global variable, in the primary function, if required to be accessed by a nested function- the variable needs to be declared with the global keyword within the function which requires access to it. This allows sharing the variable amongst the primary and other functions. If the variable is declared without using the global keyword, the variable might bring an error to the function.

130. How does MATLAB help in passing function arguments?  
a) By call by value and call by reference  
b) Only by call by value  
c) Only by call by reference  
d) By call by address  
View Answer

Answer: a  
Explanation: Like C, MATLAB allows to pass almost all arguments by value. But, if the argument passed into the function is only for mathematical purpose then it is passed as a reference. This helps in saving the memory reserved for the original value of the argument.

131. Which line is treated as H1 line?  
a) Comment line succeeding function definition  
b) Comment line preceding function definition  
c) Comment line after function  
d) All lines before and after function definition  
View Answer

Answer: c  
Explanation: When we have many functions nested in a primary function, it is a good practice to place comment lines which would help anybody to understand the purpose of the function- making the function more versatile. This comment line introduced right after the function definition is treated as H1 line. All other comment lines after or preceding the function definition won’t be returned as H1 line when the H1 line is sought in MATLAB.

132. Find the error returned by MATLAB:

syms a x y; a = xˆ2 + yˆ2; subs(a, [x,y], (2,3,4))

a) There is no subs command in MATLAB  
b) The subs command has syntactical error  
c) The subs command has extra input arguments  
d) The subs command has incorrect arguments  
View Answer

Answer: b  
Explanation: If we want to substitute the variable with constants to get the value of ‘a’, we will have to introduce the constants within third brackets. The subs command is pre-defined in MATLAB and hence MATLAB will produce a syntactical error. It shows the first error it sees while compiling our code so it won’t show that the subs command has extra input arguments.

133. Predict the error, MATLAB will generate, in the following line of code:

g = inline(‘3x+5\*x’, ‘t’)

a) No error  
b) Syntactical error  
c) Wrong arguments  
d) Expecting (,{ or [  
View Answer

Answer: a  
Explanation: MATLAB will generate no error. But if we try to find an integral value of the function defined within the string argument, MATLAB will generate an error saying the variable t is defined. This is because we have used ‘x’ as the only variable within the string input. We can change‘t’ to ‘x’ or change the variable ‘x’ in the string input to ‘t’.

MATLAB Questions and Answers – Graphics

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Graphics”.

134. What are the functions to see the graph of a continuous and a discrete function?  
a) plot() & stem()  
b) cont() & disc()  
c) plot() & disc()  
d) cont() & stem()  
View Answer

Answer: a  
Explanation: The pre-defined function in MATLAB to view the graph of a continuous and discrete functions is plot() and stem() respectively. There is no such function as cont() or disc().

135. Find the error in the following code.

x=-10:1:10; y=-10:2:10; plot(x,y)

a) Plot is not available in MATLAB  
b) Syntax of plot is wrong  
c) Length of x and y should be same  
d) No error  
View Answer

Answer: c  
Explanation: It is highly important that the length of the variables, between which we need to plot a graph, be same. This is a pre-defined syntax of MATLAB so MATLAB will return an error if the lengths are not same.

136. What is the output in the following code?

x=-10:1:10; y=-10:1:10;axis(‘off’); plot(x,y)

a) Error  
b) A graph will be shown without axes  
c) A graph will be shown with axes  
d) 2 graphs will be shown- one with axes and with no axes  
View Answer

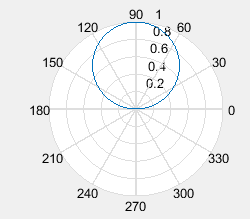
Answer: c  
Explanation: We have used the axis command before the plot command. So, the plot hasn’t been created before the axis command is invoked. Hence a graph of x and y will be shown which will have axes.

137. If we want to plot matrix arguments, which of the following gets plotted?  
a) Column wise inter-relation of two arguments  
b) Row wise inter-relation of two arguments  
c) Diagonally inter-relation of two arguments  
d) The arguments are incomprehensible  
View Answer

Answer: a  
Explanation: We have to keep in mind the order while trying to plot two matrix arguments. MATLAB will take the column wise relation between the two arguments.  
So, if x=[x1 x2 x3];y=[y1 y2 y3]; plot(x,y)- MATLAB will generate a plot between (x1,y1),(x2,y2) and so on.

138. To bring the scale of each axis to logarithmically spaced, the student entered ‘semilogx()’. What really happened?  
a) The plot will appear with both axis now logarithmically spaced  
b) semilogx() is an invalid function  
c) The plot will appear with x axis logarithmically spaced  
d) Error  
View Answer

Answer: c  
Explanation: semilogx() is a pre-defined logarithmic plot function in MATLAB. It will help to bring down the scale of the x axis in out plot to logarithmically spaced values.

139. What kind of a plot is this?  
[](https://www.sanfoundry.com/wp-content/uploads/2018/12/matlab-questions-answers-graphics-q6.png)  
a) Polar plot  
b) Cartesian plot  
c) Complex plot  
d) Not a MATLAB plotting  
View Answer

Answer: a  
Explanation: MATLAB generates a polar plot to represent the polar co-ordinates of a trigonometric function. This is done with the help of the function ‘polar(angle,radius)’. The angle increases in the anti-clockwise direction.

140. After trying to plot a pie-chart, the student finds that the function he used is rose(). What is the nature of data used by the student if an output graph is generated?  
a) Angles in radians  
b) Linear bivariate  
c) Logarithmic  
d) This is not possible in MATLAB  
View Answer

Answer: b  
Explanation: The student gets an angle histogram plot. So, he used the wrong function. But the plot was generated. So, his lines of code have defined the date in terms of angles. Plus he has used the rose command in place of the pie command.

141. To place a text on the plot using a mouse, the command used is \_\_\_\_\_\_\_\_\_  
a) gtext  
b) text  
c) title()  
d) atext  
View Answer

Answer: a  
Explanation: This is a pre-defined function in MATLAB. If we want to place a text at a position, of our interest, in a graph- we need to use the gtext command.

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142. What is the condition on x in bar(x,y)?  
a) No condition as such  
b) Should change linearly  
c) Should increase of decrease monotonously  
d) Incomprehensible  
View Answer

Answer: c  
Explanation: The values of x should be increasing monotonously or decreasing monotonously. This is due to the fact that each argument in x refers to the particular position of a bar in the bar plot.

143. If we put bar(x,y,1.2), we will get \_\_\_\_\_ bars.  
a) Uniform  
b) Damped  
c) Overlapping  
d) No  
View Answer

Answer: c  
Explanation: Usually, the default value of width is 0.8 for the function ‘bar()’. Now, if we increase bar width to a value more than 1, the bars would overlap on each other- resulting in a bar plot of overlapping bars.

144. A student has to plot a graph of f(x)=t and g(y)=t in the same graph, with t as a parameter. The function he uses is \_\_\_\_  
a) plot3(x,y,t)  
b) plot(x,y,t)  
c) disp  
d) stem(x,y)  
View Answer

Answer: a  
Explanation: The function to be used is plot3(x,y,t). This will allow him to draw a 3d plot as asked. The plot will show both the functions ‘f’ and ‘g’ with t on the z-axis.

MATLAB Questions and Answers – Statistics

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Statistics”.

145. To exhibit time-series or spatial-series data, what kind of diagrams are suitable?  
a) Pie-bar  
b) Pie-chart  
c) Ratio-chart  
d) Bar-diagram  
View Answer

Answer: d  
Explanation: Time-series or spatial-series data would comprise of quantitative characters. So they can be represented as a Bar diagram, the height of the bar would demonstrate the quantity of a category.

146. What is the output of the following line of code?

Pie([1,2],[0,1,1])

a) Error  
b) Sliced pie chart  
c) Pie-chart  
d) Labelled Pie chart  
View Answer

Answer: a  
Explanation: Following the syntax of the pre-defined function pie in MATLAB, we find the length of the two arguments passed into pie(arg1,arg2) must be the same. Here, the size of arg1 is 2 while that of arg2 is 3. Hence, MATLAB will generate an error.

147. What is the difference between primary and secondary data in statistics?  
a) No difference  
b) The former is collected from the field of the investigation while the latter is collected from a separate entity  
c) The first set of data received is Primary data while the next set is secondary data  
d) The important data is primary data while the lesser important data is secondary data  
View Answer

Answer: b  
Explanation: Data collected directly from the field of purposeful investigation is primary data because it is directly used by the one who collects it. If the data, gathered by an agency or a person, is used by a different agency or person for some purpose- there is no direct link between the data and the person requiring it. Thus this is secondary data.

148. The nature of data while using pie plots is \_\_\_\_\_\_\_\_\_\_\_ data.  
a) Discrete  
b) Continuous  
c) Polar  
d) Time-series  
View Answer

Answer: b  
Explanation: Pie plots show the percentage, a category occupies, amongst a dataset containing several categories. Now, if this dataset is not discrete- it is preferable to use pie plot since the height of bar plots might be very close to each other to show significant changes. Hence, pie plots represent continuous data mainly.

149. What would you use to show comparisons of profit of 3 industries over 3 quarters?  
a) Histogram plot  
b) Bar plot  
c) Bode plot  
d) Frequency plot  
View Answer

Answer: b  
Explanation: The data contains 3 parameters- profit, industry, quarter. We can use the histogram plot if the profits are strikingly different but usually it is not so. So, we should use Bar plot to draw 3 bars for 3 industries showing 3 separate profits over 3 separate quarters.

150. What is the difference between stem plot and histogram plot?  
a) No difference  
b) Histogram does not have negative values while stem may have negative values  
c) Histogram cannot relate 3 variable while stem can  
d) Histogram cannot be created in MATLAB  
View Answer

Answer: b  
Explanation: Histograms are used to see the frequency distribution of a variable to show the frequency of a class over any interval. So, naturally, a variable cannot repeat with a negative frequency. Stem plot only relates the two arguments it gets in terms of their projected values. So stem() can have negative values.

151. To display the partnership of 3 batsman with one batsman, one uses \_\_\_\_\_\_\_\_\_  
a) Bar-graph  
b) Histogram  
c) Pie plot  
d) Cannot be displayed  
View Answer

Answer: b  
Explanation: A bar graph is used to show the contribution of 3 batsmen with one batsman in a partnership. Thus it can be inferred who has contributed highest to the partnership among the three.

152. To display the runs scored by a batsman towards different directions in a field, one uses  
a) Bar graph  
b) Angle histogram  
c) Histogram  
d) No graph is suitable  
View Answer

Answer: a  
Explanation: The angle histogram graph plots a histogram circularly. So, viewing the field as a circle, one can easily find the area in the field where the batsman has scored the most runs.

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153. A cubic system can be represented using the function \_\_\_\_  
a) plot3  
b) stem()  
c) display  
d) legend  
View Answer

Answer: a  
Explanation: The function ‘plot3()’ is used to plot a 3d graph. The axes of the system can be mentioned as x,y,z so the plot which will be returned will be for a cube if the length cut off from each axis are equal.

154. To specify different curves in an angle histogram plot, we use the \_\_\_\_\_\_\_\_\_ function.  
a) legend  
b) display  
c) gtext()  
d) mtext  
View Answer

Answer: a  
Explanation: The legend function is pre-defined in MATLAB. It is used to print the names of the curves present in a plot. The function is the same for both 2d and 3d plots.

MATLAB Questions and Answers – Plotting Multiple Curves

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Plotting Multiple Curves”.

155. A student has created a plot of y(t)=t2. He is need to show another graph of z(t)=t3 in the same plot. But every time he hits the plot() function- MATLAB generates a plot of z(t) vs t but on a different window. What is the error?  
a) It is not possible to plot multiple plots  
b) He is not using the line function  
c) Maybe he is using stem() instead of plot()  
d) He is not using the hold function  
View Answer

Answer: d  
Explanation: The hold command is used to hold the cursor, developed after creating a plot, so that the next graph, when plotted, will appear on the same window where the initial graph was plotted. He may use the line function, but in the code he is using the plot function. So he has to enter the function hold before plotting the graph of z(t).

156. Does the plot function take multiple arguments to a plot?  
a) True  
b) False  
c) Sometimes  
d) Only if the functions are in time domain  
View Answer

Answer: a  
Explanation: The plot function can take multiple input arguments to plot multiple graphs. This is an inbuilt function so the nature of the function is, inherently, to take multiple arguments if the arguments are defined.

157. What happens if we don’t stop the implementation of the hold function?  
a) Nothing happens  
b) MATLAB keeps on generating multiple plots in the same window  
c) Error is generated  
d) Plot function won’t work  
View Answer

Answer: b  
Explanation: Suppose we plot 2 graphs on the same window by using the hold command. If we don’t stop the implementation of the hold function, MATLAB will keep on generating plots on the same window. So the user won’t get a separate plot if he wants.

158. Is histogram a kind of multiple plots?  
a) True  
b) False  
c) Cannot be determined  
d) There is no such thing called Histogram  
View Answer

Answer: a  
Explanation: We are plotting a particular data set for different entities. The data set may comprise of the same set but each entity is inherently independent from each other. So, we are plotting multiple functions of the same variables. Hence, the histogram is a kind of multiple plots.

159. The function to plot vector fields is \_\_\_\_\_\_\_\_\_\_\_  
a) quiver()  
b) pie3  
c) ezplot()  
d) contour()  
View Answer

Answer: a  
Explanation: The function ‘quiver()’ is a pre-defined function in MATLAB. It is often used to plot vector fields in MATLAB. The pie3 function is used to plot a 3-d pie plot. The ezplot() generates a 3d plot while the contour() is used to generate the contour plot of a specified matrix.

160. How to introduce a title to describe the subplots generated in MATLAB?  
a) Use a function  
b) Use the title function  
c) Use the legend function  
d) Use uipanel()  
View Answer

Answer: d  
Explanation: The uipanel can be used to give a major title to the subplots created. The title name is given as a string input by the following way:  
f=figure;  
c=uipanel(‘Parent’,f,’BorderType’,’none’);  
c.Title=’Title Name’;  
c.TitlePosition=’centertop’

161. Can we have multiple 3d plots in MATLAB?  
a) Yes  
b) No  
c) Maybe  
d) Cannot be determined  
View Answer

Answer: a  
Explanation: The plot3() function is a pre-defined function in MATLAB. So, it will allow the use to generate multiple 3d plots. This is inherent to the system.

162. The student receives an error while trying to plot multiple graphs using the hold command. What is there error if there is no a syntactical error?  
a) Cannot be determined  
b) The plot function is not defined with a constant variable range  
c) There is no hold command  
d) There has to be a syntactical error only  
View Answer

Answer: b  
Explanation: If the student is using the hold command, the student has to keep the scale and range of one axis same. Then he can plot the functions of other dependent variables, which depend on the independent variable range previously defined. If the plot function contains an entirely different set of arguments, MATLAB will produce an error.

163. What is the difference between hold on and hold all?  
a) no difference  
b) hold all holds every plot while hold on holds a specific plot in the chain of argument  
c) hold all does not exist  
d) hold on is syntactically incorrect  
View Answer

Answer: a  
Explanation: Both hold on and hold all commands are used to hold the graph of a function. There is no difference between them. To avoid confusion, one can only write hold to hold a graph and again enter the command hold to release the graph.

164. What is the purpose of the line command if the plot command can be used to directly accept the arguments and generate a plot?  
a) Saves complexity  
b) We can refrain from using the hold function  
c) There is no separate, definite purpose  
d) Cannot conclude  
View Answer

Answer: d  
Explanation: The use of the line command is primarily seen in plotting the graphs without the hold command. But we can put the arguments within the plot command itself so that we don’t have to put an extra line of code. This saves complexity, although we have increased the length of our code.

MATLAB Questions and Answers – The MATLAB Interface

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “The MATLAB Interface”.

165. Which functions help you to save and load variables?  
a)

>> save Lays [a,b]

>> load('myfile.mat')

b)

>> save Lays {a b}

>> load myfile.mat

c)

>> save Lays “a,b”

>> load(myfile.mat)

d)

>> save Lays a b

>> load('myfile.mat')

View Answer

Answer: d  
Explanation: There is a pre-defined function in MATLAB to store the variable values from your workspace permanently called ‘save filename’. Option d is the correct command syntax for calling it.

Output:

>>a=5;b=a;

>> save Lays a b; % Now go to workspace and delete the variables

>> load('Lays.mat');%Check workspace.

166. To add comments in MATLAB, use \_\_\_\_\_\_\_\_\_  
a) //  
b) %/  
c) /%  
d) %  
View Answer

Answer: d  
Explanation: The only format for adding and storing comments in MATLAB is to use the % symbol. One can choose to end a comment using %, but it is not needed.

167. To display comments of M-file, we use \_\_\_\_\_\_\_\_\_\_\_\_  
a) echo on  
b) comment on  
c) show %  
d) Cannot be displayed  
View Answer

Answer: a  
Explanation: The echo command is used to display commands present in an M-file. If the M-file has any comments, the echo command will also display the comments.

168. Where do we need to store a function to call it in other programs?  
a) The bin folder  
b) Anywhere  
c) The MATLAB folder  
d) Desktop  
View Answer

Answer: a  
Explanation: M-files containing only a function has to be written separately and has to be stored as .m files in the bin folder. If it stored in any other folder, MATLAB won’t be able to access the function file.

169. What are the difference between the ‘help’ and the ‘look for’ command?  
a) No difference  
b) Syntactical difference  
c) Help returns the entire set while look for returns specific commands  
d) Help returns all the toolbox while look for returns a single toolbox  
View Answer

Answer: c  
Explanation: The ‘help’ command is used to return all the commands surrounding a particular toolbox name entered along with it. The ‘look for’ command is used to return a particular function or set of functions whose name matches with the keyword entered in along with the ‘look for’ command.

170. What will the following set of commands do when they are present in a script file?

stem[y1,y2];

title(‘p’);

print -deps p

a) Plot the discrete graph of y1 and y2  
b) There is no stem command in MATLAB  
c) Store the graph as a separate file  
d) Cannot be determined  
View Answer

Answer: c  
Explanation: The given format of the print statement is used to store the graphs of y1 and y2 generated due to previous definitions of y1 and y2. If we only use the print command, the graph y1 and y2 will get displayed.

171. The function to close the windows containing graphs generated from MATLAB is \_\_\_\_\_\_\_\_\_\_  
a) close all  
b) close graphs  
c) delete graphs  
d) end all  
View Answer

Answer: a  
Explanation: The command close all is a pre-defined function in MATLAB. When it is called, MATLAB will automatically shut down the separate windows that have been opened to view graphs separately. The rest of the options are wrong.

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172. What is not displayed by the Workspace?  
a) Time of variable generation  
b) Standard deviation of the variable values  
c) Class of the variables  
d) Nature of the variables  
View Answer

Answer: a  
Explanation: By right clicking on the Workspace header, we will get to know the characteristics of the variables which are stored in the Workspace and what it can display. The time of variable generation is not present in the Workspace. It can only be seen if the variables from the workspace are saved separately using the command ‘save filename’.

173. MATLAB allows modelling of different control systems using \_\_\_\_\_\_\_\_\_\_\_  
a) Simulink  
b) Control System Toolbox  
c) Not available in MATLAB as of yet  
d) ezplot  
View Answer

Answer: a  
Explanation: Simulink is a separate package which is present in MATLAB. It helps to model and analyze a control system which makes MATLAB a very powerful tool for simulating dynamic systems.

174. How to stop the execution of a chain of commands?  
a) Press Ctrl +c  
b) Cannot be stopped  
c) Only usage of debugging mode is possible in MATLAB  
d) Quit  
View Answer

Answer: a  
Explanation: It may so happen that we want to pause the execution of a set of commands at a certain point. We only need to press Ctrl and C together to pause it. On the other hand, quit causes the MATLAB software to shut down. Debugging modes are also available in MATLAB.

175. What are MEX files in MATLAB?  
a) No such thing as MEX files  
b) Helps to analyse commands in MATLAB  
c) Allows the user to combine C source files with Matlab files  
d) Same as MAT files  
View Answer

Answer: c  
Explanation: MEX files are one of the kinds of file modes available in MATLAB. They are saved with a .mex extension. These files help in the association of C source files into the programs written in MATLAB.

MATLAB Questions and Answers – M-Files

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “M-Files”.

176. How would you start a debugger in MATLAB?  
a) There is no M-file in MATLAB  
b) Type edit in MATLAB and press Enter  
c) Type debug in MATLAB and press Enter  
d) Type M-file in MATLAB and press Enter  
View Answer

Answer: b  
Explanation: M-files are simple text files containing MATLAB programs. These can be used to run complex programs easily. In MATLAB, we can type edit to begin writing in Editor/Debugger mode. Typing debug or M-file won’t do any good.

177. What is the extension of script files?  
a) .m  
b) .mat  
c) .script  
d) There is a nothing called script file  
View Answer

Answer: a  
Explanation: Script files are a kind of M-file. So to save a script file, it has to saved with a .m extension. On the other hand, .mat extension is for MAT files.

178. What is the basic difference between M-files and MAT-files?  
a) There is no difference  
b) MAT files are binary data files while m-files are ASCII text files  
c) M files are binary data files while MAT-files are ASCII text files  
d) There is no such thing as MAT files  
View Answer

Answer: b  
Explanation: M-files are ASCII text files which are used to simplify our program editing in MATLAB, they are basic text files. MAT files are Binary files created by MATLAB. When we need to save any data from the workspace, it is saved in MATLAB as a MAT file.

179. What does the echo command do?  
a) It echoes  
b) It shows the comments present in Script files  
c) It shows the commands and comments in MAT-files  
d) It shows the commands and the comments in M-files  
View Answer

Answer: d  
Explanation: The echo command is a pre-defined function in MATLAB. If it is present in an m-file, the command will help to show the commands and comments present in the m-file when the m-file is called in the command window.

180. What will the following command do?

Load m1

a) Load the script file named ‘m1’  
b) Load the function file named ‘m1’  
c) Load the m-file named ‘m1’  
d) There is no Load command in MATLAB  
View Answer

Answer: c  
Explanation: The command ‘load’ is pre-defined in MATLAB. It is used to load an M-file and run it to show get the output which is supposed to be generated from the m-file. Not the m-file can be a script file or a function file. Since the question does not mention whether the m file is a script or a function file, the possible option is Load the function file named ‘m1’.

181. What will the following command do?

Save workspace

a) Saves the entire workspace as MAT file  
b) Saves a variable named ‘workspace’ as MAT file  
c) Saves the entire workspace as m file  
d) Saves a variable named ‘workspace’ as m file  
View Answer

Answer: b  
Explanation: The save command is used to save a variable from workspace. So the above command will only save a single variable, named ‘workspace’, from the workspace itself. It won’t save the entire workspace.

182. How do you create a function file in MATLAB?  
a) Begin m-file with function definition  
b) Begin script file with function definition  
c) There is no such thing called function file  
d) An m-file is only a function file  
View Answer

Answer: a  
Explanation: If an m-file starts with a function definition, it becomes a function file. This file can be called to generate a desired output multiple times. As MATLAB allows the making of such files, complicated big programs can be broken down to simplify the nature of the entire MATLAB program.

183. 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 finds the error and gives her a scolding. What is a silly mistake?  
a) She was calling the wrong function  
b) She has placed a semicolon at the end of the line which computes the desired values  
c) She has called a .m file  
d) She was calling a script file  
View Answer

Answer: b  
Explanation: If we write a function file, we should not put a semicolon at the line which computes a value. This will lead to the passing of cursor to the next line after the function is implemented without showing any output. So it was good that the teacher scolded her.

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184. A function is not returning values according to desired input values. What should be the correction?  
a) Include clear all at the beginning of function file  
b) Include close all at the beginning of function file  
c) Include echo on in the function file  
d) Cannot be solved  
View Answer

Answer: a  
Explanation: Even though the variables defined within a function are local variables, they might get affected due to the previous usage. So while execution of the same function, the user might get a different answer. Thus it is advised to include clear all to remove all previous definitions of variables. The command ‘close all’ is used to clear the previously created graphs.

185. MEX files work on JAVA.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: MEX files are files written in C language. They can be integrated with MATLAB. They won’t work on JAVA.

MATLAB Questions and Answers – Loops

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Loops”.

186. What is the default increment value in a for-loop?  
a) 0  
b) 1  
c) An increment value is necessary  
d) 0/1  
View Answer

Answer: b  
Explanation: When we are going to start a for loop in MATLAB, it is not necessary to assign a specific increment value. The default increment value will then be taken as 1.

187. What is the output of the following code?

for i=1:4

for j=1:4

a=5;a=a+5;

end

end

a) No output will be shown  
b) a=10;  
c) a=80  
d) Error in the code  
View Answer

Answer: a  
Explanation: We have put a semi-colon before ending the inner for-loop. So no output will be shown after ending the outer for-loop. If we want to see any output, we will refrain from placing a semi-colon at the end of that line.

188. What is the output of the following code?

for i=1:5

for j=1:6

a(i,j)=input();

end

end

a) No output  
b) Error  
c) Asks user to input a 5\*6 matrix  
d) Asks and displays a 5\*6 matrix  
View Answer

Answer: b  
Explanation: The syntax for input is wrong. There should be a pair of single inverted commas within the syntax, even though we don’t have to write anything necessarily within them. But to take any input, we have to use the

syntax: a(i,j)=input(‘’) OR a(i,j)=input(‘Enter value coloumn-wise:’)

We can choose to place a semi-colon at the end, then the matrix won’t be displayed after every input.

189. What is the size of i after the following code is run in MATLAB?

for i=5:1

i=i-2;

end

a) No output  
b) 0\*0  
c) i=-1  
d) Error  
View Answer

Answer: b  
Explanation: The above loop does not run because the default increment value in MATLAB is +1. We have to assign a decrement value separately if we want the index value to decrease for a for-loop. If we set a decrement value of -1, the loop will run for 5 times and the final value of i will be -1. No output will be shown due to a semi-colon but the question is what will be the size of i.

190. A break statement will leave the outer loop.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: In case of nested for-loops or while-loops, the break statement will remove control only form the loop where it was invoked as a command. It won’t come out from the outer loop.

191. How many times will the following loop run?

for i=1:5

if(i<3) break

a) No output due to some error  
b) 1 times  
c) 0 times  
d) 3 times  
View Answer

Answer: c  
Explanation: The for-loop is not terminated. Any statement or a group of statement, in a for-loop, will be executed effectively only after the end statement is used to terminate the loop.

192. What is the nature of the following code?

j=0;i=1;

while(j>5)

for i=1:8

j=j+i;

end

end

a) j=0 & i=1  
b) j=1 & i=0  
c) i=8 & j=36  
d) Error  
View Answer

Answer: a  
Explanation: We find that the inner while loop goes into an infinite loop. MATLAB is unable to compute the value so it returns j=0 as was initialized. The same goes for i=1. If there was no while loop, option i=8 & j=36 would have been the output. There is no error in logic.  
Output: No output will be shown since we have placed a semi-colon after j=j+i. But the workspace will store i & j as 1 & 0 respectively.

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193. A for-loop can have multiple index values.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: A for-loop has a single index. But it has multiple index-values during successive iterations.

194. There can be multiple decision variables for while loop.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: We can provide multiple conditions to end a while loop. The conditions can be different so we can have multiple decision variables for while loop.

195. What will be the output for the following code?

k=0;i=0;

while(k<1 && i<1)

k=k+1;

i=i+1;i=i-k;

end

a) i=0,k=1  
b) i=0,k=0  
c) i=1,k=0  
d) i=1,k=1  
View Answer

Answer: a  
Explanation: We find that i become 0 at the end of the first iteration while k becomes 1. Since k<1 is a condition for the while loop to terminate, the while loop gets terminated. In case of multiple condition, the while loop will be terminated even if one condition is satisfied.

196. How do we break from an infinite loop without keeping a break statement within the loop?  
a) Press Ctrl+C  
b) Press Ctrl+Z  
c) Loop won’t be terminated  
d) Press Ctrl+X  
View Answer

Answer: a  
Explanation: If we begin an infinite loop, by choice or as a silly mistake, we can terminate the loop manually if we forget to introduce a break statement as necessary. We can choose to press Ctrl + C and the loop will get terminated at the same instant.

197. What will the following code do?

j=0;i=5;

while(j<0)

j=j-1; i=i+5;j=i;

end

a) Nothing  
b) j=0 & i=5  
c) Error  
d) Cannot be determined  
View Answer

Answer: b  
Explanation: We observe that the while loop will enter into an infinite loop. Hence the final value of i and j won’t be determined by MATLAB. MATLAB will retain the values for i and j as they were initialized. Hence j will remain 0 and i will remain 5. There is no error in the code.

MATLAB Questions and Answers – Presenting Results

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Presenting Results”.

198. How would you plot multiple graphs in MATLAB?  
a) Using the hold function  
b) Using the mplot function  
c) Using the mstem function  
d) It cannot be done in MATLAB  
View Answer

Answer: a  
Explanation: The hold command is a pre-defined function in MATLAB. It allows the control to remain in the window where which was generated by MATLAB, the first time we type a command to plot any kind of graph. Then on we can plot multiple graphs on the same window.

199. How do you show the program of an MAT file?  
a) The program should contain the echo command  
b) The program should contain the showprog command  
c) The program should contain the diary command  
d) The program cannot be shown while running a MEX file  
View Answer

Answer: d  
Explanation: MEX files are not M-files. They are binary files which store the values of variables present in the workspace. So there is no question of showing the program of a MAT file.

200. The help command works only for a pre-defined function in MATLAB.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: The help command will only show the nature of functions of any command which is already existing in the MATLAB directory. If we want to show the purpose of our written function, we have to add comments in our m-file and then enter the echo command.

201. What is the equivalent of subplot (1, 1, 1)?  
a) subplot()  
b) plot  
c) It is not possible  
d) axes  
View Answer

Answer: d  
Explanation: While using subplot (1,1,1), we have allocated memory as a 2-D matrix for only 1 graph. This is similar to the axes command which generates an empty graph. This is pre-defined in MATLAB.

202. It is not possible to store graphs as MAT-file.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: MAT files save data from the workspace. A graph, plotted among different variables, cannot be stored in MATLAB since MAT-files are files used to store values from the workspace.

203. The command used to reflect the files from a disk into the workspace is \_\_\_\_\_\_\_  
a) load  
b) show  
c) disp()  
d) it is not possible  
View Answer

Answer: a  
Explanation: The load function is pre-defined in MATLAB. It is used to load variables and/or data from the disk to the workspace.

204. The format for 5 digit representation along with exponent is \_\_\_\_\_\_\_\_\_\_  
a) short e  
b) short g  
c) short exp  
d) 4 digit along with exponent value can be represented  
View Answer

Answer: a  
Explanation: The short e format is used to represent a result with 5 digits and an exponent term. Now, this is pre-defined in MATLAB. Short g and short exp are not present in MATLAB. We cannot use a representation of 4 digits and an exponent as it is not defined in MATLAB, as of yet.

205. Which operator is used to prevent the printing of insignificant zeros?  
a) %o  
b) %nz  
c) %g  
d) It is not possible  
View Answer

Answer: c  
Explanation: %g is used to represent any number, which has a fixed number of digits or a number with an exponent, with no insignificant zeros. This is present in the MATLAB directory only.

206. The function to plot a graph with both axes on logarithmic scales is \_\_\_\_\_\_\_\_\_\_  
a) loglog  
b) log  
c) semilog  
d) not possible  
View Answer

Answer: a  
Explanation: There is no command called semilog or log to plot a graph with logarithmic scales. However, we have the loglog function, pre-defined in MATLAB, which allows us to plot a graph of two variables where both the variables are scaled logarithmically.

207. We cannot plot a discrete and continuous relationship in the same graph.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: We can plot a discrete and continuous relationship in the same graph. We have to use the hold command and change the scaling of the variables a bit if at all needed, so that the discrete and continuous relationship looks prominent enough in the same graph. We have to use the hold command efficiently.

MATLAB Questions and Answers – Fine Tuning

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Fine Tuning”.

208. How will one escape from printing graphs of variables, whose value gets changed for the program?  
a) Use the clear all command at the beginning  
b) Use the close all command at the beginning  
c) Use the clc command  
d) Cannot be escaped  
View Answer

Answer: a  
Explanation: The clear all command keeps all the local variables of the function unaffected i.e. they prevent their values from getting changed due to some previous usage of the function. The close all command closes all the graphs the clc command removes the written code.

209. A loop is used to avoid repetitive writing of the same function in the code.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: The purpose of using loops is to avoid writing the same line multiple times. The same line may be a particular function which computes a certain value. For the sake of accuracy, we may run the function multiple times, within a loop.

210. How will you return to execution from debugging mode?  
a) Use the dbcont command  
b) Use the return command  
c) Use the dbcont & return command  
d) Use the keyboard command  
View Answer

Answer: c  
Explanation: While debugging, the user can choose to insert a set of instruction to change the nature of the already written program. To return to continue execution, the user can enter either dbcont or the return command.

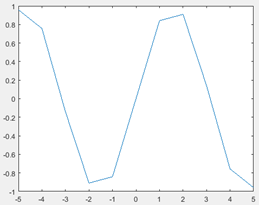
211. The plotting of 3d plots and 2d plots requires separate windows. But the user has entered the hold on command. What is to be done?  
a) Use the pause command  
b) Use the hold off command  
c) Use the close command  
d) Nothing can be done  
View Answer

Answer: a  
Explanation: The hold off command is necessary to plot multiple graphs in the same window. Thus multiple 2d graphs or multiple 3d graphs can be drawn on the same window. But the pause command is used to keep the plot of 2d graphs and wait before generating 3d graphs. The close command closes any existing graphs.

212. What will be the output of the following code?

T=-5:1:5; y=sin(T); plot(T,y)

a) No output  
b) A perfect sine curve  
c) A broken sine curve  
d) Cannot be determined  
View Answer

Answer: c  
Explanation: The sine curve is a continuous signal or a discrete signal. So the tendency of every point in the curve has to follow a radian frequency and not a step frequency. Here the frequency of time is stepping up by 1, so the sine curve will only consist of 11 values, which will lead to the sine curve appearing to be broken.  
Output:[](https://www.sanfoundry.com/wp-content/uploads/2018/12/matlab-questions-answers-fine-tuning-q5.png)

213. How would you expect to see exponential inter-relation in a logarithmic scale?  
a) A straight line  
b) A curved line  
c) Depends on the exponent  
d) Depends on the log scale  
View Answer

Answer: a  
Explanation: The exponential inter-relation will appear as a straight line in a log scale. This is because logarithmic scale and exponential nature follow a linear relationship. If there are no other terms than exponentials in the expression, the graph will be a linear one.

214. There will be a problem in computing the logarithm of a negative number.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: While trying to compute a value for the logarithm of a negative number, MATLAB will return an imaginary value. We can do problems which need to compute the logarithm of a negative number.

215. Global variables must be mentioned \_\_\_\_\_ an M-file.  
a) at the top in  
b) anywhere in  
c) out of the  
d) there is nothing called global variables  
View Answer

Answer: a  
Explanation: Mentioning the global variables at the top of an M-file allows the user to prevent any error rising to usage of the same variable unconsciously. If we declare it anywhere, it may so happen that we would need it at the beginning. Hence- it is plausible to declare it at the top of an M-file.

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216. To stop execution, press \_\_\_\_\_  
a) Ctrl+C  
b) Use pause command  
c) Use end command  
d) Use keyboard command  
View Answer

Answer: a  
Explanation: The pause/keyboard command is used to suspend execution for a certain time. If we press Ctrl+C, execution will be completely stopped. The end command is used to end loops of any kind.

217. The function definition is shown when we use the look for the command.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: The look for command shows the H1 line used in a function. The look for command will describe only inbuilt functions and not user-defined function. The H1 line is comment line just after the function definition so the look for command does not return the function definition.

MATLAB Questions and Answers – Suppressing Output

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Suppressing Output”.

218. Graphs are not suppressed by the ‘;’.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: The commands to generate any kind of graph will always result in an opening of a new window when they are used as required. The ‘;‘ won’t suppress it.

219. What will be the output of the following code?

close all;

for x = 1.5 : .5 : 2;

y=3;

x=y+3

clc

end

a) No value will be stored  
b) The result will be printed  
c) The result will be printed twice but no value will remain in the Workspace  
d) The loop will not run  
View Answer

Answer: c  
Explanation: The loop will run twice and the final value of y is 5 while that of x is 2. Each time the loop runs, no result shall be printed since the ‘ ; ‘ at the end of the last line suppresses the result and it gets stored in MATLAB.

Output: x = 4.5

x = 5

220. What will be the output of the following code?

for i = 1 :4: 5

y=i+1

clear i

end

a) y=5; i=2  
b) y=5, printed twice  
c) Loop will run once, y=2  
d) Infinite loop  
View Answer

Answer: b  
Explanation: The index of a loop is a separate variable. It will get added to y in the first iteration and y will have value 2. Now even though we have the index i=1 in the workspace, it will get cleared from it but the loop will continue with i=1. So the final value of y will be y=5+1=6. The loop won’t be an infinite loop.

Output: y = 2

y = 6

221. Clear will removes all graphs.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: Clear all removes variables from the workspace. It does not remove graphs.

222. What will be the output of the following code?

for i=1 : 3

i=i-1

end

a) i will be printed thrice as 0,1,2 successively  
b) Infinite loop  
c) No output  
d) i=2  
View Answer

Answer: a  
Explanation: The index of a loop is a separate variable. The value of I at the first iteration is 1 so at the end of the first iteration, it will print 0. This does not mean that the index variable will also be 0. Thus So i will be printed thrice as 0,1,2 successively.

Output: i = 0

i = 1

i = 2

223. How can we close all graphs in MATLAB?  
a) Using the close command  
b) Using the clear all command  
c) Using the close all command  
d) Using the clear command  
View Answer

Answer: b  
Explanation: The in-built command to close the windows containing graphs is ‘close all’. This command should be placed at the beginning of a function which creates graphs so that future commands do not affect the graph generated every time the function is called.

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224. clc in a function will clear the function.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: Suppose we have the clc command at the end of an M-file. The purpose of clc command is to clear the command window. So when we call the function, it will clear the command window but the function will not be cleared.

225. What will be the output of the following code?

for i = 1 : 1

p=i-1

i=i+1;

clc

end

a) i=2  
b) p will be printed  
c) Error  
d) Cannot be determined  
View Answer

Answer: a  
Explanation: The value of i won’t be printed since we have ended it with a semi-colon. The value of p will get printed and then the clc command will remove it from the command window. Instead, the value of I will be stored in the workspace as 2.

226. \_\_\_\_\_\_\_\_\_\_\_ will give a hint that the file is closed.  
a) Fopen  
b) Fclose  
c) Gclose  
d) clc  
View Answer

Answer: b  
Explanation: The Fclose command will close the file and returns an integer value to the monitor screen to signify the operation of the command. If it returns 1, the file is closed.

227. To delete one variable but not the entire workspace, we need to mention the variable name after the clear command.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: The clear command removes every variable from the workspace. If we only mention the variable name, it will delete only that variable from the workspace and not the entire workspace will be cleared.

MATLAB Questions and Answers – Data Classes

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Data Classes”.

228. What is the nature of storage of anything in MATLAB?  
a) Stored as arrays  
b) Stored as a data structure  
c) Stored as a variable  
d) Depends on nature of the input  
View Answer

Answer: a  
Explanation: An array is a data structure. But, even a single variable in MATLAB is stored as a 1\*1 array. Every variable we use in MATLAB is stored as an array.

229. What is the nature of the following variable, in MATLAB?

A=[1 , ‘Poland’, ‘Nail polish’,’Hit’,’Ler’]

a) String  
b) String-integer  
c) Integer-string  
d) Cannot be determined  
View Answer

Answer: a  
Explanation: MATLAB will take the variable A as a string variable. It will replace the 1 with an unknown value.

230. What is the starting index of an array in MATLAB?  
a) 1  
b) 0  
c) Depends on the class of array  
d) Unknown  
View Answer

Answer: a  
Explanation: Unlike C, the starting address of an array in MATLAB is 1. Hence if we declare an array named arr and type arr(0), we will get an error. The first entry to the array will have the index 1.

231. All data types are converted to \_\_\_\_ before mathematical operations.  
a) Single  
b) Double precision  
c) Floating  
d) Unsigned  
View Answer

Answer: b  
Explanation: All mathematical operations are done with double precision in MATLAB. Hence, all data types, single and floating, are converted to double data types.

232. What is the return type of angles in MATLAB?  
a) Degrees  
b) Radians  
c) Radians & Degrees  
d) Depends on the user  
View Answer

Answer: b  
Explanation: This is characteristic of MATLAB to take input for angles and return angles in radians. Thus entering sin(90) in MATLAB will not return 1, but entering sin(pi/2) will return 1.

233. To represent only two digits after the decimal point, the format we use is \_\_\_\_\_\_  
a) Long e  
b) Short  
c) Hex  
d) Bank  
View Answer

Answer: d  
Explanation: The Long e format is used to represent a total of 15 digits while short is used to represent 4 digits after decimal. The formal Hex is used for the hexadecimal representation of bits. The bank format is also called ‘Dollars and Cents’. It is used to display only two digits after the decimal.

234. How do we change the nature of the display of the numerical answer?  
a) Use the format command  
b) Use the class command  
c) MATLAB provides intuitive display  
d) Not possible  
View Answer

Answer: a  
Explanation: The format command is used to change the display of numerical answer. If the format command is not invoked, MATLAB will always show four digits after decimal point and all the digits before the decimal point.

235. Strings are stored in \_\_\_\_ variables.  
a) Character  
b) String  
c) Stack  
d) Array  
View Answer

Answer: a  
Explanation: All the variables are stored in the form of arrays. So strings are also stored as character variables. The variables are not called string variables.

236. What will be the output of the following code?

ilaplace(1/syms p^2)

a) t  
b) s  
c) error  
d) ilaplace is not present in MATLAB  
View Answer

Answer: c  
Explanation: We need to declare p as a symbolic variable before passing it to the ilaplace command. But here, MATLAB won’t show that p is not defined. It will show ‘Unexpected MATLAB expression’ since the command ilaplace is defined to accept variables already defined. It won’t allow defining a variable in the function parameter itself.

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237. What is the output of the following code?

format bank

sym(sqrt(3))

a) 1.72  
b) 1.73  
c) 3(1/2)  
d) sqrt(3)  
View Answer

Answer: c  
Explanation: sym is used to represent the input arguments of the command in a symbolic form. Hence, MATLAB won’t evaluate the value of the square of 3. It will represent it symbolically as 3(1/2).

Output >> format bank

>> sqrt (3)

Ans = 1.73.

MATLAB Questions and Answers – Functions and Expressions

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Functions and Expressions”.

238. How many expressions are there in the following mathematical relation?

a=sqrt(log(sqrt(x+y)))

a) 2  
b) 3  
c) 1  
d) 4  
View Answer

Answer: b  
Explanation: The given relation has 3 functions but it has 4 expressions in itself. sqrt(x+y) is an expression while sqrt() is the function. log(sqrt(x+y)) is a separate expression while log() is the function. sqrt(log(sqrt(x+y))) is entirely an expression. The entire mathematical relation is an expression used to describe that a is equal to sqrt(log(sqrt(x+y))); this is important since we are sure about the nature of the relationship between a,x and y. Hence, there are 4 expressions which successfully describe the mathematical relation between the variables a,x and y.

239. How many functions are there in the following mathematical relation?

p=sin(pi\*(log(x))

a) 2  
b) 3  
c) 1  
d) 0  
View Answer

Answer: a  
Explanation: There are only 2 functions used to describe a meaningful relationship between p and x. They are the sin() and log(x). Now, the expression ‘pi\*log(x)’ is not to be confused as a function since we have not created a function i.e. we have not made a self-containing block of statements with an algorithm to compute the value after multiplying pi with log(x). The ‘\*’ operator is used directly to the expression does not serve as a function, it shows an operation. Hence there are only 2 functions.

240. What are the minimum numbers of expressions which will be required to express a mathematical relation?  
a) At least 1  
b) At least 2  
c) At most 1  
d) Depends on the number of variables  
View Answer

Answer: d  
Explanation: If we have a very big expression relating a variable y with any no. of variables x1,x2…xn we can put the entire expression on the right hand side within a function and reduce the expression to  
y=func(x1,x2,x3…xn)  
This contains two expressions only. The function, ‘func’, may contain a set of 10000 statements. But we have simplified the expression to demonstrate a mathematical relation between y and all the other variables of the right-hand side, provided we are sure about the nature of the function ‘func’.

241. Is it possible to reduce the number of expressions in the following mathematical relation?

a=sin(pi\*log(x))

a) Yes  
b) No  
c) Maybe  
d) Impossible  
View Answer

Answer: a  
Explanation: We can define a function, say func, which contains the block of statements, required, to compute the given relation and return the value. Then we can say  
a=func(x)  
We have 2 expressions now while the previous statement had 4 expressions. Hence, we have reduced the number of expressions.

242. Is it possible to reduce the number of functions in the following mathematical relation?

l=cos(2\*pi\*sin(n/x))

a) Yes  
b) No  
c) Maybe  
d) Obviously  
View Answer

Answer: b  
Explanation: We cannot reduce the number of functions which are required to express a mathematical relation amongst variables. This is because those functions compute the value of the dependent variable for any value of the independent variable. In some cases, we may approximate the values of the dependent variable- but we are approximating the functional operation, we are not deleting the function.

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243. The teacher has given the assignment to find the sum of 2 numbers. But the code should not contain the ‘+’ operator. What is to be done?  
a) Use a function  
b) Add the values and print the sum directly  
c) Use an expression  
d) Cannot be done  
View Answer

Answer: a  
Explanation: The power of a function is to hide the statements which are used to complete our task. So the student can create a function file to add two numbers. Hence, the code will not show the ‘+’ operator but it will be used implicitly.

244. How many expressions are used to describe a mathematical relation between a, b and c?

b=9; c=4;

a=b+c;

a) 4  
b) 2  
c) 3  
d) 1  
View Answer

Answer: b  
Explanation: The code has 4 expressions, ‘b=9’, ‘c=4’, ‘b+c’, and ‘a=b+c’. The mathematical relation is described by ‘a=b+c’ only which contains 2 expressions. Hence, there are two expressions that has been used to describe a mathematical relation between a, b and c.

245. A mathematical statement is a combination of functions and variables only.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: An expression is a combination of variables, operators and functions. It is not necessary that only functions and variables are present in a mathematical expression. The statement ‘a=b+c’ contains no functions, but it only performs the addition operation between b and c and assigns the value to a. The statement a=sum(b,c) shows no mathematical operation explicitly since the operation is done by the function itself.

246. What is the command which can be used to see the expressions within a user-defined function in MATLAB?  
a) help  
b) look for  
c) echo on  
d) cannot be seen  
View Answer

Answer: c  
Explanation: A user-defined function is a function file. The commands ‘help’ and ‘look for’ will only return the nature of in-built function. If the function file has ‘echo on’, it will display the expressions in the function file while executing. This is because function files, though they are different from script files, are inherently M-files.

247. What are mathematical expressions?  
a) Any mathematical relation  
b) Any mathematical operation  
c) Any mathematical conversation  
d) Any mathematical function  
View Answer

Answer: b  
Explanation: A mathematical function is used to relate a dependent variable with an independent variable so it is used to operate on the independent variable. Similarly, any mathematical relation is used to relate an independent variable with a dependent variable. This is also an operation since based on the value of the independent variable, we comment on the value of the dependent variable. Hence a mathematical expression is simply any mathematical operation.

MATLAB Questions and Answers – Complex Arithmetic

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Complex Arithmetic”.

248. Which command is used to find the argument of a complex number?  
a) atan2()  
b) args()  
c) abs()  
d) cannot be determined  
View Answer

Answer: a  
Explanation: The argument of a complex number is only the angle which satisfies the cartesian equations used to represent the real and imaginary part of the complex number. Thus atan2() is the in-built function to find the angle or the argument, in MATLAB. abs() is used to find the modulus of the complex number. args() is not a valid function in MATLAB.

249. What is the class of the complex number?  
a) double  
b) symbolic  
c) character  
d) array  
View Answer

Answer: b  
Explanation: Since the complex number represented in MATLAB uses ‘i’ as a symbolic character, the class of any complex number is symbolic. It is not double and it is certainly not a character. An array is the general class of any variable or expression used in MATLAB.

250. What is the argument of -1-i in MATLAB?  
a) -3\*pi/4  
b) pi/4  
c) 5\*pi/4  
d) -7\*pi/4  
View Answer

Answer: a  
Explanation: We observe that the complex number lies in the 3rd quadrant. Hence, we conclude that the argument of the complex number -1-i will be -3\*pi/4 in MATLAB. -7\*pi/4 is equivalent to -3\*pi/4. Pi/4 is 5\*pi/4 again.

251. What will be the output of the following code?

atan2(-1,1)

a) Error  
b) -pi/4  
c) -.7854  
d) 0  
View Answer

Answer: c  
Explanation: MATLAB returns all values of angles in radians. Hence, we will not see the output as -pi/4. The argument is -pi/4 but MATLAB will return -.7854.

252. The modulus of z, z conjugate and -z are not equal in MATLAB.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: The modulus of z, z conjugate and -z are equal. The magnitude of the modulus is always a positive number. It is independent of the positive or negative nature of the real and imaginary parts of the complex number.

253. What will be the output of the following code?

z=2+3i/(i99)

a) z conjugate  
b) -z  
c) -3+(2\*i)  
d) -1  
View Answer

Answer: d  
Explanation: Following the precedence of operators,  
2+3i/(i99)=2-3=-1. If we had given 2+3i within brackets, the value would have been -3+(2\*i). The answer won’t be -z or z conjugate.

254. What is the output of the following code?

t=-i:.01\*i:i; p=exp(2\*t);plot(t,p)

a) a sinusoidal signal  
b) an exponential signal  
c) a discrete sinusoidal  
d) no plot  
View Answer

Answer: d  
Explanation: No plot will be generated. This is because colon operands cannot have complex arguments. It has to be real arguments.

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255. What is the command used to check the real part of a complex number in MATLAB?  
a) abs()  
b) realc()  
c) real()  
d) cannot be checked  
View Answer

Answer: c  
Explanation: The command to check the real part of any complex number is real(). It is an inbuilt function in MATLAB.

256. Which of the following command can be is used for complex arithmetic?  
a) abs()  
b) atan()  
c) realc()  
d) imagc()  
View Answer

Answer: a  
Explanation: The abs() command is used to get the modulus of any complex number. The rest of the options are wrong because they should be ‘atan2()’, ‘real()’ and ‘imag()’.

257. What will be the output of the following code?

abs(i)

a) 1  
b) -1  
c) Error  
d) i  
View Answer

Answer: a  
Explanation: The abs command is used to find the magnitude of the complex argument given to it. Since magnitude is a positive value, the output will be a positive value and not -1.  
Output: 1

MATLAB Questions and Answers – Linear Systems

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Linear Systems”.

258. What is a linear system?  
a) A system which follows homogeneity and additivity  
b) A system which follows additivity  
c) A system which follows homogeneity  
d) Almost every system is linear  
View Answer

Answer: a  
Explanation: A system which follows homogeneity and additivity is called linear system. This comes from the definition of superposition and here is the proof:  
Taking a system with which produces y1(t) as output for an input x1(t) and an output y2(t) for an input x2(t),  
HOMOGENITY: For input ax1(t), output should be ay1(t) and for input bx2(t), output should be by2(t).  
ADDITIVITY: For a input of sum of x1(t) and x2(t), output should be the sum of a y1(t) and y2(t), i.e. the sum of individual response  
Finally, if for an input of the sum of ax1(t) and bx2(t), if we get the output as sum of ay1(t) and by2(t) the system is both homogeneous and additive. This is similar to the superposition principle. No the system is linear.

259. What is the output if the following code?

if(eig(A)==eig(A’))

disp(‘True’)

a) True  
b) No output  
c) False  
d) Error  
View Answer

Answer: d  
Explanation: The syntax of the if control structure is wrong. While writing the logical expression, we cannot put it under brackets. If the brackets were removed, True would have been displayed.

260. A student has to find a solution for a system of equations having three variables. He has defined the coefficient matrix as C while the variable matrix as d. He observes that the system is homogeneous. So, to find the solution, he must first check  
a) Consistency  
b) Homogeneity  
c) Heterogeneity  
d) Linearity  
View Answer

Answer: a  
Explanation: If the system of equations is not consistent, the student cannot ever get a solution for the system of equation. He has to check consistency by finding the rank of the matrix. Thereafter he can comment on the nature of solutions the system possesses.

261. The command to find the eigen vector of a matrix in matrix form is \_\_\_\_\_\_\_\_\_\_\_\_\_  
a) eig(a,matrix)  
b) eig(a,’matrix’)  
c) eigen(a,matr)  
d) eig(a)  
View Answer

Answer: b  
Explanation: The in-built function to find the eigen values of any matrix in MATLAB is eig(a). But, to display the result in matrix form- we use eig(a,’matrix’). This nature of the eig command is in-built in MATLAB.

262. The nature of the eigen matrix displayed in MATLAB is \_\_\_\_\_\_\_\_\_\_\_  
a) Unsorted  
b) Sorted  
c) Sorted in Ascending order  
d) Sorted in Descending order  
View Answer

Answer: a  
Explanation: The eig(a,’matrix’) command will return the eigen values of the matrix ‘a’ in a matrix form. But, it will give it in an unsorted manner- the elements will be placed on the principal diagonal. To sort them, we need to use the sort command- this will sort the columns in ascending order.

263. Checking the linearity of a system, the first thing we need to check is whether the system is \_\_\_\_\_\_\_\_\_\_  
a) Homogeneous or not  
b) Consistent or not  
c) Superposition  
d) Depends on the representation of the system  
View Answer

Answer: d  
Explanation: First we need to check if the system is represented by a set of equations or it is represented in terms of signals. If it is represented by a set of equation, we need to go for homogeneity first. If it is represented by the observation of input-output signals, we need to go by Superposition.

264. In MATLAB, how can we check linearity of systems represented by transfer function?  
a) Check waveforms after superpostion  
b) Compare rank of matrices  
c) Go for Rouche’s Theorem  
d) Intuition  
View Answer

Answer: a  
Explanation: Since we have the transfer function of a system, we need to apply superposition and compare the waveforms generated after applying the method of superposition. Rouche’s Theorem is for a system of equations represented by matrices and it is the method of comparing ranks.

265. How can we check in MATLAB if an electrical circuit is linear or not?  
a) Check consistency  
b) Superposition  
c) Superposition via Simulink  
d) Check homogeneity  
View Answer

Answer: c  
Explanation: We can model our circuit in Simulink and then apply the superposition theorem to check if at all the circuit is following superposition theorem. To apply the theorem, find the I/V relationship across any branch due to a single source and switch of the rest of the sources. Repeat this process for all the individual sources. Finally, turn on all the sources and check whether the I/V relationship is equal to the superposition of all the I/V sources previously calculated.

266. How can we find the solution of a nonhomogeneous system of equations without dealing with the rank of matrices?  
a) Rouche’s theorem  
b) Cramer’s rule  
c) Gauss’s law  
d) Cannot be done  
View Answer

Answer: b  
Explanation: It is easier to find the solution of a system of equations for a non-homogeneous system using Cramer’s rule. Now, the process is time consuming since we need to find higher order determinants for higher order systems. This is why we go for Rouche’s theorem by hand. But MATLAB computes determinants very fast. Hence, without finding the rank, we can find the solution of a system of nonhomogeneous equations.

267. For a homogeneous system, Cramer’s rule will always yield a trivial solution in MATLAB.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: The process of Cramer’s rule will always yield a solution for the variables in a system. But for a homogeneous system with no constant value, it will yield a 0 as a solution. Hence all the variables will get a 0 as a solution, there-by yielding a trivial solution. This doesn’t imply that the system is inconsistent- this is why we go for comparing ranks, it will allow us to establish a more pertinent justification of the nature of the system.

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268. To apply Cramer’s rule, the condition is \_\_\_\_\_\_\_\_\_  
a) Non-homogeneous system of equations  
b) Homogeneous system of equations  
c) Determinant of co-efficient matrix is not equal to 0  
d) No condition  
View Answer

Answer: c  
Explanation: If the determinant of co-efficient matrix is 0, all the solutions will come to be Infinite. Thus, this is the condition to check before going for Cramer’s rule to check the solution of any system of equations.

269. To apply superposition in MATLAB, the condition, one of the condition is \_\_\_\_\_\_\_\_\_\_\_  
a) No active element is present except sources  
b) No passive element is present  
c) System should have unilateral elements  
d) Nothing needs to be checked  
View Answer

Answer: a  
Explanation: Superposition will definitely fail in presence of active elements. A system containing only passive elements will always follow superposition. Superposition theorem fails for unilateral elements., the network must have only passive elements.

270. A second order system with no initial condition is always linear.  
a) True  
b) False  
View Answer

Answer: a  
Explanation: The superposition theorem will yield the nature of linearity of a system. For a system defined by an n-th order differential equation, if there are no initial conditions- the system will always be linear.

271. To check the rank of a non-singular square matrix, we have to use \_\_\_\_\_\_\_\_\_\_\_  
a) not required  
b) rankm()  
c) rankmatr()  
d) rank()  
View Answer

Answer: d  
Explanation: Since the matrix is non-singular, the rank is the highest number of rows or columns (both are the same for a square matrix. Since we know the matrix is non-singular, we don’t have to use any command. We can directly say the rank is equal to the order of the matrix. If the matrix is not singular, we will have to use rank() to get a value of the rank.

272. A student aims to use Cramer’s rule to find a solution for a homogeneous system. But while finding the solution, he observes that he is getting infinity as a solution. The code is

p=X.\C

X is the matrix created by replacing a column with constant co-efficients in the equation.  
C is the co-efficient matrix  
P is one of the variables in the system  
Is this a proper justification?  
a) Yes  
b) No  
c) Maybe  
d) It is not possible to find solutions in MATLAB  
View Answer

Answer: b  
Explanation: The code should have been p=X./C. Since the system is homogeneous, X is always 0. So, applying Cramer’s rule will always yield a trivial solution. But here the student gets or ‘Inf’ as an answer since according to his code, C will be divided by 0- this isn’t really the case. Hence, this is not a proper justification.

MATLAB Questions and Answers – Differentiation – 1

This set of MATLAB Multiple Choice Questions & Answers (MCQs) focuses on “Differentiation – 1”.

273. Which rule does MATLAB use while differentiating a set of functions?  
a) u-v rule  
b) by parts  
c) no pre-defined rule  
d) not possible  
View Answer

Answer: a  
Explanation: If we give an argument within our command diff() which is a product of multiple functions or division of two functions; we will get the result that will be generated according to the u-v rule. This makes MATLAB very versatile for the applications concerning differentiation.

274. There is no difference between a difference equation and a differential equation.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: There are many differences between a difference equation and a differential equation. But the most important would be that a difference equation takes finite steps of changes of our changing variable while a differential equation takes an infinitesimal change in our changing variable.

275. For the existence of the nth (n is varying from 1 to until the derivative is becoming 0) derivative of an equation, the equation should have \_\_\_\_\_\_\_\_\_\_  
a) Initial values  
b) At least one independent variable  
c) At least one dependent variable  
d) No such condition  
View Answer

Answer: b  
Explanation: Derivatives are calculated with respect to a change in an independent variable. Hence for deriving a derivative- the equation should have at least one independent variable so that we can find the derivative with respect to a change in that independent variable.

276. What will be the output of the following code?

syms x;diff(sin(x)\x2)

a) (2\*x)/sin(x) – (x2\*cos(x))/sin(x)2  
b) cos(x)/x2 – (2\*sin(x))/x3  
c) x2\*cos(x) + 2\*x\*sin(x)  
d) Error  
View Answer

Answer: a  
Explanation: We observe that sin(x)\x2 has a back slash. This, in MATLAB, implies that x2 is divided by sin(x). Hence the answer is (2\*x)/sin(x) – (x2\*cos(x))/sin(x)2. If it would have been a front slash, the answer would have been cos(x)/x2 – (2\*sin(x))/x3. If there was a ‘\*’ sign, the answer would have been ‘x2\*cos(x) + 2\*x\*sin(x)’.

277. What is the data type of y?

y=diff(x2\*cos(x) + 2\*x\*sin(x))

a) Symbolic  
b) Double  
c) Array  
d) Symbolic Array  
View Answer

Answer: d  
Explanation: Every element saved in the workspace is stored as an array. The class of the array will be symbolic for y since we haven’t specified a value for x. If we give a value of x, y will be stored as Double.

278. The output for diff(p2,q) is \_\_\_\_\_\_\_  
a) 0  
b) 2\*p  
c) 2 dp/dq  
d) Error  
View Answer

Answer: a  
Explanation: We are differentiating the function ‘p2’ with respect to q. Hence the value will be 0. The 2nd argument in the diff() command is the variable, with respect to which- we differentiate our function.  
Output: 2\*p

279. What does the following code do?

syms m,y,x,c;

y=mx+c;

diff(y)

a) Calculate m  
b) Calculate slope  
c) Error  
d) Calculate divergence  
View Answer

Answer: c  
Explanation: While using syms, we can’t instantiate multiple symbolic variables using a comma. We will have to enter them with space in between. Hence MATLAB returns an error. If we remove the comma, the code will calculate the slope of ‘y=mx+c’.

280. What is the nature of ode45 solver?  
a) 2nd ordered R-K solver  
b) 4th ordered R-K solver  
c) 1st order R-K solver  
d) Adams solver  
View Answer

Answer: b  
Explanation: The ode45 solver is an Ordinary Differential Equation solver in MATLAB which is used to solve a differential equation using the Runga-Kutta or R-K method upto 4th order. This is an inbuilt ODE solver in MATLAB.

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281. Ordinary differential equations having initial values \_\_\_\_\_\_\_\_\_\_\_\_  
a) Can be solved  
b) Cannot be solved  
c) Can be modelled  
d) Has a trivial solution  
View Answer

Answer: c  
Explanation: We have 8 different Ordinary differential equations solvers in MATLAB. They take the initial values, if at all present, into account while solving the Differential equation of interest. Hence, systems which follow a differential equation can be modelled and observed using MATLAB.

282. The current characteristics of RC networks are better analyzed by Laplace than differentiation methods.  
a) True  
b) False  
View Answer

Answer: b  
Explanation: We use the Laplace method to ease the process of solving a differential equation. But, with the help of MATLAB- we can solve them very fast. So, it is obvious to use the ODE solver to calculate the current through the capacitor in RC networks and get a time response.