DF-2999

Second Year B. Sc. (Sem. III) Examination
March / April - 2016

Applied Electronics : Paper - V
(Simulation using MATLAB)

Time : 2 Hours] [Total Marks : 50

Instructions :

(1) Fill up strictly the details of signs on your answer book.

Name of the Examination :
SECOND YEAR B. Sc. (SEM. 3)

Name of the Subject :
APPLIED ELECTRONICS - 5

Subject Code No. : 2 9 9 9  Section No. (1, 2,...) : 1 2 3

Seat No. :

Student’s Signature

(2) All questions are compulsory.

(3) Section - 1 carry 12 marks.

(4) Section - 2 carry 20 marks.

(5) Section - 3 carry 18 marks.

(6) Symbols and terminology used here have their usual meanings.

(7) Scientific calculator is allowed.

O.M.R. Sheet  માટે અંગેની અંગેની સૂચનાઓ આપેલ
O.M.R. Sheet-ની પાણી અંગેલ છે.

Important instructions to fill up O.M.R. Sheet is given on back side of the provided O.M.R. Sheet.
1 MATLAB desktop is
   (A) Directory pane
   (B) None of these
   (C) The place where MATLAB puts you when you launch
   (D) The command window

2 The P-files are created with the
   (A) Pcode command
   (B) None of these
   (C) Pcode command
   (D) Ncode command

3 Editor window is the place
   (A) Where you create
   (B) All of these
   (C) Where you write
   (D) Where you edit

4 M-files are
   (A) Both of these
   (B) None of these
   (C) Standard ASCII text files
   (D) Hex files
The command “what” will

(A) Lists only Mex-files on the disk
(B) Lists M-, Mat- and Mex- files on the disk
(C) Lists Mat- on the disk
(D) Lists only M-, on the disk

The ‘workspace pane’ will

(A) Both of these
(B) None of these
(C) Lists all variables
(D) Lists all values of variable

Whose will

(A) both of these
(B) None of these
(C) lists variables currently in the workspace with their size
(D) show only workspace

To modify MATLAB search path, we use

(A) Both of these
(B) None of these
(C) Path
(D) Editpath
9. Pwd
   (A) Shows the current working directory
   (B) None of these
   (C) Change the current working directory
   (D) List content of current directory

10. Which of the following MATLAB calculations would result the value 1?
    (A) $3^2/3*8$
    (B) None of these
    (C) $1+4/6$
    (D) $5/2*3$

11. The difference between a function and a script is only
    (A) only a script file can perform a series of commands
    (B) function variable names only have meaning within the, whereas script
        variables are available to other programs.
    (C) function file can be run from the command line
    (D) only a function requires inputs

12. Which of the following MATLAB expression gives −1?
    (A) sind $[3*pi/2]$
    (B) $\sin [-pi/2]$
    (C) $\cos [180]$
    (D) $\cosd [pi]$

[ Contd...]
13. What will be the answer by Computing \( \sin^2 \frac{\pi}{6} + \cos^2 \frac{\pi}{6} \) using MATLAB?
   (A) 3.0013
   (B) 1.0000
   (C) 1.1111
   (D) 1.0011

14. If \( x = [6 6 6] \) & \( y = [3 3 3] \) then \( x+y \) will be
   (A) \([3 3 3]\)
   (B) \([6 6 6]\)
   (C) \([5 5 5]\)
   (D) \([1 1 1]\)

15. To plot a circle using MATLAB, the linspace must be declared as
   (A) linspace (0,2*pi,100)
   (B) None of these
   (C) linspace (1,4*pi,10)
   (D) linspace (1,2*pi,10)

16. What will be the value of y-coordinates of a line with slope \( m = 0.5 \) and the intercept \( c = -2 \) at the following x-coordinates, \( x=0,1.5,3,4,5,7,9,10 \).
   (A) \([-1.0000 -1.2500 -0.5000 0 0.5000 1.5000 2.5000 4.0000]\)
   (B) \([-6.0000 -1.2500 -0.5000 0 0.5000 1.5000 2.5000 6.0000]\)
   (C) \([-3.0000 -1.2500 -0.5000 0 0.5000 1.5000 2.5000 4.0000]\)
   (D) \([-2.0000 -1.2500 -0.5000 0 0.5000 1.5000 2.5000 3.0000]\)

17. If \( x = [1 5 3 7] \) \( y = [0 2 8 7] \) then what will be the value of \( k \), if \( k = x < y \)
   (A) \([0 0 1 0]\)
   (B) None of these
   (C) \([2 0 1 0]\)
   (D) \([1 1 1 0]\)
18 If a = rand (12) and u = rand(10,1) will
   (A) Both of these
   (B) None of these
   (C) Create $10 \times 10$ matrix A and $12 \times 1$ vector u
   (D) Create $12 \times 12$ matrix A and $10 \times 1$ vector u

19 The equation to plot sine waves fplot must be
   (A) Fplot(‘x.*sin2(x)’,[0 12*pi])
   (B) None of these
   (C) Fplot(‘x.*sin(x)’,[0 10*pi])
   (D) Fplot(‘x.*sin(x)’,[0 11*pi])

20 To draw 2-D plots we need
   (A) Style-option
   (B) All of these
   (C) Xvalues
   (D) Yvalues

21 To draw 3-D plot using MATLAB we must have
   (A) X, y, z and ‘style-option’
   (B) All of these
   (C) X and y
   (D) Y and z

22 To generate and plot the surface we need
   (A) linspace (−1,1,10)
   (B) All of these
   (C) linspace (−2,2,100)
   (D) linspace (−3,3,50)
23. If \( \gg \gg A = [x \ y \ z; \ m \ n \ o; \ p \ q \ r] \), what will be \( A(3,1) \)?

(A) \( r \)

(B) \( o \)

(C) \( x \)

(D) \( m \)

24. What will be the answer by Computing \( 2^5 \div (2^5 - 1) \)?

(A) \( 3.0013 \)

(B) \( 4.2341 \)

(C) \( 1.0323 \)

(D) \( 1.0011 \)

25. If \( x = [1 \ 2 \ 3] \) \& \( y = [3 \ 3 \ 3] \) and \( z = [4 \ 4 \ 4] \) then \( x+y \) and \( x+z \) will be

(A) \([5 \ 6 \ 7], \ [4 \ 5 \ 6]\)

(B) Error, Error

(C) \([4 \ 5 \ 6], \ [5 \ 6 \ 7]\)

(D) Error, \([6 \ 6 \ 6]\)
26 Which of the following command will create a vector x with 10 elements linearly spaced between 0 & 100?

(A) linspace (0,100,100)

(B) linspace (0,100,10)

(C) linspace (0,10,100)

(D) linspace (10,20,100)

27 If x=[1; 2; 3] & y = [3 3 3] and z = [4 4 4] then x+y and x+z will be

(A) [5 6 7], [4 5 6]

(B) Error, [1 2 3]

(C) [4 5 6], [5 6 7]

(D) Error, Error

28 What will be the value of factn if n = 5 in following program

function factn = factorial (n);

factn = 1;

for k = n:-1:1

factn = factn*k

end

(A) 402

(B) 120

(C) 240

(D) 102