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312605

May 2024
BCA (DS) VI SEMESTER
MATLAB (GEC-DS-10)

Time : 3 Hours] [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART–A

1. (a) Define RAM and explain its role in a computer system. (1.5)

(b) What is the purpose of the "clc" command in MATLAB? (1.5)

(c) What function is used to generate a sequence of numbers in MATLAB? (1.5)

(d) Explain the purpose of the "fopen" function in MATLAB file handling. (1.5)

(e) What command is used to add labels to the x-axis and y-axis in MATLAB plots? (1.5)

(f) How are arguments passed to a function in MATLAB? (1.5)

(g) Define BIOS and explain its importance in a computer system. (1.5)

(h) What happens if a function in MATLAB does not specify any input arguments? (1.5)

(i) How can you clear a variable from the MATLAB workspace? (1.5)

(j) How does machine code differ from high-level programming languages? (1.5)

PART–B

2. (a) Describe the layers of the software hierarchy model and their resspective functions. (7)

(b) How are arithmetic operations such as addition, subtraction, multiplication, and division performed on binary numbers in computer systems? (8)

3. (a) Explain the difference between MATLAB scripts and functions, providing examples of each. (7)

(b) Explain the concept of vectors and matrices in MATLAB and demonstrate operations such as addition, subtraction, multiplication, and division. (8)

4. (a) Explain the process of opening and closing files in MATLAB, including the use of file identifiers. (7)

(b) Describe how to write data to text files in MATLAB using functions like fprintf and fwrite. (8)

5. (a) Discuss the importance of data visualization through graph plots. (5)

(b) Discuss the purpose and usage of different types of graph plots, such as bar plots, histogram plots, and pie charts. (10)

6. (a) Discuss the difference between a "while" loop and a "for" loop in MATLAB. (7)

(b) Write a MATLAB program that calculates the factorial of a given number using a recursive function. (8)

7. (a) Describe how to convert numeric data to strings in MATLAB using the num2str function. (5)

(b) Discuss the concept of local and global variables within MATLAB functions. (5)

(c) Describe the difference between built-in functions and user-defined functions in MATLAB. (5)
