Course Code	**:**	**BCS-111**
Course Title	**:**	**Computer Basics and PC Software**
Assignment Number	**:**	**BCA (I)/111/Assignment/2024-25**
Maximum Marks	**:**	**100**
Last Date of Submission	**:**	**31st October, 2024 (For July Session)**
	:	**30th April, 2025 (For January Session)**

This assignment has three questions of 80 marks (each section of a question carries same marks). Answer all the questions. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Please give precise answers. The word limit for each part is 200 words.

Question 1: **7×4=28 Marks**

(a) What are the functions of various operational units of a computer system? What is von Neumann Architecture? How can you relate von Neumann architecture to an actual computer? Explain with the help of an example configuration.

(b) Compare and contrast the characteristics and/or organization of the following:
(i) DRAM Vs. SRAM
(ii) Access time on Magnetic disks Vs. access time on Magnetic tapes
(iii) Pen Drive Vs. CD-RW
(iv) ROM Vs. PROM

(c) Convert the following numbers as stated:
(i) Decimal 64.005125 to binary
(ii) Decimal 2376 to hexadecimal
(iii) Character **A** and **Z** to ASCII and Unicode Hexadecimal CFE9A to binary

(d) What is an instruction? What are its components? What is the role of an instruction in a computer? Explain with the help of an example. Where does the instruction reside at the time of execution.

(e) A 2.5 inch diameter disk has 8 platters with each platter having two data recording surfaces, each platter on disk has 4084 tracks, each track has 400 sectors and one sector can store 1 MB of data. Calculate the storage capacity of this disk in Bytes. If this disk has a seek time of 2 milli-seconds and rotates at the speed of 6000 rpm, find the Access time for the disk. Make suitable assumptions, if any.

(f) What are the uses of various components of motherboard of a computer? List at least four output devices and ports to which these devices can be connected. Explain the characteristics of these output devices and ports.

(g) What are the uses of following software / utility:
(i) Data Compression Utility
(ii) Media Player
(iii) Disk Defragmenter
(iv) Disk checker

Question 2: **7×4=28 Marks**

(a) Why do you need virus detection software? What are their drawbacks? What are the techniques to identify a virus? List any 4 latest virus for desktop systems.

(b) Consider that you have to run several computer programs simultaneously on a computer. Each program takes input from a file and output information on a printer. How does different components of an Operating system (like memory management, I/O management, Process management, file system and user interface) will help in execution of these programs.

(c) Explain the differences between procedural programming and object oriented programming with the help of one example program of each.

(d) Draw a flow chart of a program that adds N even numbers starting from 1. The value of N should be input by the user.

(e) List the elements of a programming language. Explain the terms data type, expression, assignment; and logical, relational and equality operators with the help of an example each.

(f) What are the phases of project development in which project management software can help. Explain with the help of examples.

(g) Explain the following with the help of an example/diagram, if needed:

(i) Development Model for Open Source Software
(ii) Tools for program development
(iii) Use of functions and Macros
(iv) Database and Database Management System

Question 3: **6×4=24 Marks**

(a) Explain the characteristics of any two guided and any two unguided channels for data transmission.

(b) Four branch offices of an organisation are located in four major cities of a vast country. Explain the characteristics of the network that will be needed for every branch office. All the four branch offices network should also be connected by another network. Explain the characteristics of this network also.

(c) What is Internet? What are the major protocols used on Internet? What is an IP address? How can an IP address be related to a web address? Explain with the help of an example.

(d) What are the different features of a browser? If you want to perform Online Banking Transactions, what precautions will you take before performing a transaction?

(e) Describe the process of creating a web email account. What are the different components of a mail message? Explain with the help of a diagram.

(f) Explain the following in the context of Internet and its applications, giving their features and uses:

(i) Online Education
(ii) eCommerce