

- (b) Describe the process of binary subtraction using 1's complement and 2's complement methods, and provide an example for each. (8)
4. (a) Compare and contrast different types of operating systems, such as batch, time-sharing, and real-time systems. (7)
- (b) What is data mining? Discuss its applications and significance in modern computing. (8)
5. (a) Explain the concept of memory hierarchy and its impact on computer performance. Include details about cache memory, primary memory, and secondary memory. (8)
- (b) Explain how embedded systems work and provide examples of their applications in everyday devices. (7)
6. (a) Explain the principles and applications of mobile computing, including the challenges it faces in today's technological landscape. (7)
- (b) Explain how data is represented in binary form, and discuss the process of converting decimal numbers to binary. (8)

(500)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 776

I

Unique Paper Code : 6332491101

Name of the Paper : Computer Fundamentals

Name of the Course : B.Voc. (Web Designing)

Semester : I

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. **Section A** is compulsory.
3. Attempt any **Four** Questions from **Section B**.
4. Parts of a question must be answered together.
5. Use of scientific calculator is allowed.

P.T.O.

Section A

1. (a) What is the difference between the Arithmetic Logic Unit (ALU) and the Control Unit in a computer system? (3)
- (b) What is a switched mode power supply (SMPS), and what are its functionalities and components? (3)
- (c) Subtract the binary number 0110 (6 in decimal) from 1011 (11 in decimal) using 2's complement. Show all steps involved? (3)
- (d) Explain the difference between EBCDIC, ASCII, and Unicode with examples? (3)
- (e) Differentiate Linker and Loader? Additionally, explain how a loader handles dynamic linking at runtime? (3)
- (f) Convert the following ? (3)
 - (i) $(1F4)_{16} = ()_2$
 - (ii) $(7B2)_{16} = ()_2$
 - (iii) $(725)_8 = ()_{10}$

- (g) What is a device driver, and what are its roles and functionalities? (3)
- (h) Predict the future landscape of technology over the next decade. Which emerging technologies do you believe will have the most significant impact, and why? (3)
- (i) List three pointing devices and write a short note on each in a computer system? (3)
- (j) Explain Unicode and list three encoding formats ? (3)

Section B

2. (a) Given the string "Hello, World! 123", convert each character to its ASCII binary representation? (7)
- (b) Discuss the limitations of ASCII encoding and how these limitations are addressed by extended ASCII? (8)
3. (a) Explain the various components of the central processing unit (CPU) and their functions. (7)