



MANIPAL
UNIVERSITY JAIPUR
University under Section 2(f) of the UGC Act

PROGRAMME	BACHELOR OF COMPUTER APPLICATIONS (BCA)
SEMESTER	I
COURSE CODE & NAME	DCA1108- FUNDAMENTALS OF COMPUTERS & DIGITAL SYSTEM

Section A

Multiple Choice Questions (2 Marks each)

[Please answer *all* the questions]

1. What is the primary function of a monitor as an output device?
 - a. Data input
 - b. Data storage
 - c. Data display
 - d. Data processing

2. Which output device is commonly used for producing printed copies of digital documents?
 - a. Monitor
 - b. Printer
 - c. Speaker
 - d. Scanner

3. What is the main disadvantage of carry propagation delay?
 - a. It increases the complexity of the adder.
 - b. It reduces the accuracy of the addition
 - c. It increases the power consumption of the adder.
 - d. It slows down the overall addition process.

4. What does carry propagation in a binary adder refer to?
 - a. The process of adding two binary numbers together.
 - b. The movement of a carry-out from one stage of addition to the next.
 - c. The elimination of the carry bit in binary addition.
 - d. The conversion of binary numbers to decimal before addition.
5. What is the main function of a magnitude comparator?
 - a. To add binary numbers
 - b. To subtract binary numbers
 - c. To compare the magnitudes of binary numbers
 - d. To multiply binary numbers
6. How many outputs are there in a basic magnitude comparator?
 - a. One
 - b. Two
 - c. Three
 - d. It varies based on the number of input bits
7. Which of the following is true about a modulus counter?
 - a. It can only count up.
 - b. It counts to a predetermined value before resetting.
 - c. It only counts down.
 - d. It does not need a clock signal.
8. An asynchronous down counter is triggered by the:
 - A) Rising edge of the clock
 - B) Falling edge of the clock
 - C) Level of the clock
 - D) None of the above
9. In a 3-bit asynchronous up counter, the number of possible states is:
 - A) 6
 - B) 7
 - C) 8
 - D) 9

10 An asynchronous up counter is also known as a:

- A) Ripple up counter
- B) Synchronous counter
- C) Down Counter
- D) Binary counter

Section B

SHORT ANSWERS (5 Marks each)

Approximately (200-250) words

[Please answer *Any Four* questions]

1. Differentiate between Analog and Digital Signals.
2. With a neat diagram briefly explain the computer hardware components.
3. Explicate the different types of computers.
4. How can we compare two strings in java? Explain.
5. What is the primary function of a keyboard as an input device?
6. Explain the working principles of scanning devices.
7. Explain the difference between flatbed and sheet-fed scanners.

Section C

LONG ANSWERS (10 Marks each)

Approximately (400-500) words

[Please answer *Any Three* questions]

1. Design a 4-bit Johnson counter and mention its application.
2. Elucidate the construction of an Asynchronous counter using flip-flops.
3. Write a short note on the Asynchronous Down Counter.
4. Design MOD-8 counter and mention the states.

