

Ajay Kumar Garg Engineering College, Ghaziabad

Department of MCA

Sessional Test-2

Course:	MCA	Semester:	III
Session:	2017-18	Section:	MCA-1 & 2
Subject:	Introduction to Prog. & Computer Organization	Sub Code:	RCA A01
Max Marks:	50	Time:	2 hour

Note: Answer **all** the sections.

Section-A

A. Attempt **all** the parts. (5 X 2 = 10)

1. Differentiate signed and unsigned binary number representation.
2. What do you mean equivalence relation?
3. What is onto mapping?
4. List different type of Instruction format.
5. What is the concept of pipelining?

Section-B

B. Attempt **all** the parts. (5 X 5 = 25)

6. Let $x = \{1,2,3\}$ and f, g, h , and s are functions from X to X given by
 $f = \{(1,2), (2,3), (3,1)\}$ $g = \{(1,2), (2,1), (3,3)\}$ $h = \{(1,1), (2,2), (3,1)\}$
 $s = \{(1,1), (2,2), (3,3)\}$, then find $f \circ g$, $g \circ f$, $f \circ h \circ g$, $s \circ g$, $g \circ s$.
7. Prove that $1.2 + 2.3 + \dots + n(n+1) = (n(n+1)(n+2) / 3)$, where n belongs from set of Natural Numbers N . Prove it through principle of Mathematical Induction.
8. $F(x) = (x+2) / (x+1)$, then calculate the inverse function of x .
9. An Instruction is stored at location 300 with its address field at location 301. The address field has the value 400. A processor register R1 contains the number 200. Evaluate the effective address if the addressing mode of the instruction is
i. Direct ii. Immediate iii. Relative iv. Register Indirect v. Index with R1 as the index register
10. Define the Instruction Pipeline in detail.

Section-C

C. Attempt **all** the parts. (2 X 7.5 = 15)

11. Explain different types of functions in detail. Also explain one- one- onto mapping.
12. What is the difference between instruction stream and data stream? What is Flynn's classification about computer system?