

**PARUL UNIVERSITY**  
**FACULTY OF IT & COMPUTER SCIENCE**  
**MCA Winter 2018 – 19 Examination**

**Semester: 1**  
**Subject Code: 05201103**  
**Subject Name: Fundamentals of Computer Organization**

**Date: 29/10/2018**  
**Time: 02:00pm to 04:30pm**  
**Total Marks: 60**

**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1 Answer the followings.****A. Do as directed.****(05)**

1. POS stands for \_\_\_\_\_.
2.  $(786)_{10} = (?)_2$
3.  $(10111011)_2 + (11001011)_2 = (?)_2$
4. What is Flip-Flop?
5. Full Form of ASCII is \_\_\_\_\_.

**B. Multiple choice type questions.****(10)**

1. \_\_\_\_\_ is indicating Transitive law.
 

A. $A(B+C) = AB + AC$	B. $A(B+C) = (A+B)C$
C. $(AB)C = A(BC)$	D. If $A=B$ and $B=C$ then $A=C$
2. Which memory device is generally made of semi-conductors?
 

A. RAM	B. Hard-disk
C. Floppy disk	D. CD disk
3.  $(1011)_2 - (1001)_2 = (?)_2$ 

A. $(1010)_2$	B. $(0010)_2$	C. $(1001)_2$	D. $(1000)_2$
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4. Fastest memory access element \_\_\_\_\_
 

A. Cache	B. RAM
C. Accumulators	D. Hard Disk
5.  $(15)_{10} = (?)_2$ 

A. 0011	B. 0110
C. 1010	D. 1111
6.  $(10101)_2 = (?)_{16}$ 

A. 10	B. 15
C. 25	D. 5
7.  $(1100\ 1110)_2 = (?)_{10}$ 

A. 206	B. 210	C. 205	D. 306
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8. Which of the following expression is in sum-product (SOP) form?
 

A. $(A+B)(C+D)$	B. $(A)B(CD)$
C. $(AB)+(CD)$	D. $AB$
9. Full form of CPU \_\_\_\_\_
 

A. Central Processing Unit	B. Central Programming Unit
C. Control Programming Unit	D. Control Processing Unit
10. \_\_\_\_\_ is used to store data in registers.
 

A. D flip flop	B. JK flip flop
C. RS flip flop	D. None of the mentioned

**Q.2 Answer the followings.****(15)**

1. Simplify the following expression using De Morgan's Theorem.  
 $ABC + ABC' + A'BC + A'B'C + A'BC' + A'B'C'$  **(2)**
2. Explain Floating Point Representation. **(2)**
3. Explain instruction format with diagram. **(2)**
4. What is flip flop? Explain any one flip flop in detail. **(3)**
5. Explain De Morgan's theorem. **(3)**

6. List out different types of bus. Explain any two bus in detail.

(3)

**Q.3 Answer the following. (Any three)**

(15)

1. Write a note on Magnetic Disk.
2. Explain Immediate and Register addressing modes.
3. What is multiplexer? Explain 8 x 1 multiplexer with diagram and truth table.
4. Explain following instructions:  
(a) MOV (b) ADD (c) DEC (d) CMP (e) AND (f) NOT (g) ROL (h) OR (i) NEG (j) DIV

**Q.4 Answer the following.**

**A.** List all optical storage devices. Explain any one in detail.

(05)

**B.** Explain instruction Set of Intel 8086 microprocessor and Draw architecture of Intel 8086 processor.

(10)

**OR**

**B.** Write a note on Direct and Register indirect addressing modes.

(10)