DAYANANDA SAGAR UNIVERSITY

USN No: ENG18CA0009

I Semester B.C.A. Examinations – December 2018 / January 2019

Course Title: Computer Organization – I
Duration: 03 Hours
Time: 10:00 AM to 01:00 PM

Course Code: 16CA103
Date: 18-12-2018
Max Marks: 60

Note:
1. **Answer 5 full questions choosing one from each Section**
2. **Each Section carries 12 Marks**
3. **Draw neat sketches wherever necessary**
4. **Missing Data may be suitably assumed**

SECTION – 1

1.a. Outline the important functional unit of computer with appropriate diagram. (06 Marks)

1.b. Explain the System software, Application software and Utility Software with examples. (06 Marks)

OR

2.a. Differentiate between the followings: (06 Marks)
(i) Compilers and interpreters
(ii) Linker and loader

2.b. Draw and explain the system bus structure. (06 Marks)

SECTION – 2

3.a. Write the 8 different types of logic gates with graphic symbol and truth table. (06 Marks)

3.b. Convert the following. (06 Marks)
(i) $(23652)_{10}$ to binary
(ii) $(10111011)_{2}$ to decimal
(iii) $(46234)_{10}$ to binary

OR

4.a. Define number system. Discuss different number systems. (08 Marks)

4.b. Define Boolean algebra and outline its importance. (04 Marks)

(P.T.O)

SECTION – 3

5.a. Simplify the following Boolean function in Sum of Products(SOP) form by means of a 4 variable Karnaugh map(K-map) : $F(A,B,C,D)=\sum m(0,1,4,5,6,7,11,12,13,14,15)$ (06 Marks)

5.b. Simplify the Boolean expression: $ABC+A'+AB'C$ (06 Marks)

OR

6.a. Simplify the Boolean expression: Complement of the expression $A'(A+B)+B(B+AA)(A+B')$. (04 Marks)

6.b. Simplify the following Boolean function in Sum of Products(SOP) form by determining Prime implicants using Quine McCluskey method : $F(A,B,C,D)=\sum m(0,1,2,3,10,11,12,13,14,15)$ (08 Marks)

SECTION – 4

7.a. Differentiate between multiplexer and demultiplexer. (06 Marks)

7.b. Differentiate between decoder and encoder. (06 Marks)

OR

8.a. Differentiate between RAM and ROM. (06 Marks)

8.b. Illustrate the input devices of the system. (06 Marks)

SECTION – 5

9.a. Explain the types of memory with examples. (08 Marks)

9.b. Illustrate the output devices of the system. (04 Marks)

OR

10.a. What is addressing modes? Explain the various types of addressing modes. (06 Marks)

10.b. Explain the phases of instruction cycle with appropriate diagram. (06 Marks)

Dayananda Sagar University

School of Engineering

Department of BCA

Internal Assessment Test - II

Class:	1st Semester, BCA	**Date:**	15/10/2018
Course:	Computer Organisation-I	**Time:**	10:00 to11.30 am
Course code:	16CA103	**Max. Marks:**	50

Note: ***Answer any FIVE full questions***

Q. No.	Questions	Marks
1	a. Convert $(A692)_{16}$ to all other number systems. b. Convert $(1010010011)_2$ to all other number systems.	05 05
2	Explain how NAND gate is an Universal gate with Circuit diagram and Truth Table.	10
3	a. Simplify the Boolean expression: A'(A+B)+B(B+AA)(A+B') b. Simplify the Boolean expression: ABC+A'+AB'C	05 05
4	Simplify the following Boolean function in Sum of Products(SOP) form by means of a 4 variable Karrnaugh map(K-map) : $F(A,B,C,D)=\sum m(0,1,4,5,6,7,11,12,13,14,15)$	10
5	a. Represent (-42) in all signed binary representation in 8-bit binary. b. Describe De Morgan's theorems with truth table.	06 04
6	Simplify the following Boolean function in Sum of Products(SOP) form by determining Prime implicants using Quine McCluskey method : $F(A,B,C,D)=\sum m(0,1,2,3,10,11,12,13,14,15)$	10