

**Department of Computer Science & Engineering
Motilal Nehru National Institute of Technology Allahabad, PRAYAGRAJ**
End Semester (Theory) Examination (ODD-Semester) 2018-19
Class: MCA (First Semester) 2018-19
Subject: Digital Computer Organization (Code:CS-31103)

M.M. : 60

Time: 3 Hrs

Note: 1. Attempt any FIVE(05) questions including Q. No. (1) which is COMPULSORY to ALL.

2. All parts of a question should be answered in one attempt SEQUENTIALLY.

3. Write to the point, exactly what is asked.

4. Make & State necessary Assumptions clearly.

Q.No. 1 (COMPULSORY to ALL)

(A) Define the following terms in brief:

- (i) OS (ii) Assembler (iii) Loader (iv) Linker (v) Macro processor (vi) Microprocessor
- (vii) Address (viii) ASCII Code (ix) I/O Controller (x) BIOS Program (xi) Mother Board
- (xii) Universal Gates (xiii) VLSI (xiv) Cross Assembler

(B) Trace Flow Chart and then Write down a 8085 Assembly Language Program for sum of a series of Four 8-Bit Numbers stored from location 2501 H -2504 H. Sum is to be stored at Location 2450 H.

(C) A CPU needs 512 X 8 RAM & 512X8 ROM with the help of available 128X8 RAM & 512X8 ROM. Trace a neat diagram for the following:

- (i) Block diagram of the RAM chip & ROM chip (ii) Relevant Memory Address Map for the CPU (iii) Memory connection to the CPU

(D) Explain in brief the construction & working of Hard Disk Drive . How exactly the DATA is stored and READ ? What is Access time, Seek Time & Latency Time?

(E) Write down "Booting steps of an IBM PC" in Windows environment with Role of BIOS in the same. (07+03+(1+1+3)+3+2=20)

Q.No. 2 (A) Simplify the function $F(A,B,C,D)=\sum(0,1,2,5,8,9,10)$ using K-Map in SOP & POS forms.

(B) What is a Multiplexer? Trace Logic Diagram & Function Table for 4-to-1-Line Multiplexer.

(C) Define a "BUS". Construct a BUS System using 4X1 MUX for 4 Registers, each with Size of 4 bits.

(D) Convert $(9AF)_{16}$ to binary & find it's 2^s Complement. (03+03+03+01=10)

Q.No. 3 (A) Construct the following:

- (i) 4-bit Adder – Subtractor using Full Adder.
- (ii) 4-bit Binary Incrementer using Half Adder.

(B) A digital Computer has a Common BUS System for 16 Registers of 32 bits each. The BUS is constructed with Multiplexer. Answer the followings:

- (i) How many selection inputs are there in each Multiplexer?
- (ii) What size of Multiplexer are needed?
- (iii) How many multiplexers are there in the BUS.

(C) What is "Negative Logic"?

((03+03)+03+1=10)

(....Continued on Page No. 02)

Q.No. 4 (A) Trace the BLOCK – DIAGRAM of INTEL 8085. Also mention details of SP, Instruction Register, & Temporary Register.

(B) Write down an Assembly Language program with proper comments for the followings:

- (i) Write down the program for division of two 1-Byte numbers A & B (A div B : A>B) as discussed in the Class.
- (ii) Product of two 8-Bit Numbers: Product is 8-Bit. (04+(03+03)=10)

Q.No. 5(A) What do you understand by “Addressing Modes”? Discuss various Addressing Modes of INTEL 8085 Microprocessor with Example.

(B) Trace a Logic for setting the bits of Status Register of a CPU.

(C) What is an Instruction Cycle? Explain properly.

(D) What is Interrupt & PSW? Differentiate: External Vs Internal Interrupt.

(03 + 02 +02 +03=10)

Q.No. 6(A) Define the Followings in reference to Control Memory:

(i) Control Word (ii) Microinstruction (iii) microprogram (iv) Control Memory (v) Control Address Register (vi) Sequencer (vii) Pipe line Register (viii) Hard wired Control

(B) Explain properly the Selection of Addresses for Control Memory.

(C) Is it possible to design a Microprocessor without a microprogram? Are all microprogrammed Computers also Microprocessors? (04+04+02 = 10)

Q.No. 7(A) What is Associative Memory? Explain its organization using Block diagram. What is role of Argument, Key & Match Registers? Explain with a simple example.

(B) Explain in brief Match Logic for one word of Associative Memory with relevant associated derivations.

(C) How write operation is performed in Associative Memory? (04+04+02=10)

Q.No. 8(A) What exactly we mean by “Mapping Process” in Cache Memory?

Explain any TWO of the following “Mapping Process” in brief:

(i) Associative Mapping (ii) Direct Mapping (iii) Set-Associative Mapping

(B) Explain in brief : “Writing into Cache”. ((03+03)+04=10)

Q.No. 9(A) What is Virtual Memory? Explain.

(B) Differentiate: Address Space Vs Memory Space.

(C) Explain in brief : Address Mapping using Pages (03+03+04=10)

Q.No.10 Write Short Notes on any FIVE of the followings:

(A) Flip-Flops (B) Stack Organized CPU (C) Decoders (D) Counters

(E) PEN DRIVE: Construction & working (F) Page Replacement (2 X 5 =10)

* END *

Class: MCA First Semester 2018-19

M.M. : 20 Subject: Digital Computer Organization (Code: CA31103) M. Hrs: One & Half

- Note: 1. ALL Questions are compulsory.
2. Write ALL parts of a question together in one attempt NOT here & there.
3. Write to the point. Make & State necessary assumptions.

Q.No.1 (a) Both our text followed in Class detail Block diagram of Digital Computer. Compare them. (01)

(b) Define the following circuits with their one practical application: (02)
(i) Decoder (ii) Encoder (iii) Multiplexer (iv) Binary Counters (v) Flip-Flop

(c) What do you mean by Memory Addressing capacity & WORD Length of a Microprocessor ?
What is Memory Addressing capacity & WORD Length of 8085 Microprocessor? Justify (02)

Q.No.2 (a) How Status Flags in 8085 Microprocessor are set? Explain. (01)

(b) Define "Addressing Modes". Define ALL addressing modes of 8085 Microprocessor with One example in each. (03)

Q.No.3 Write down an 8085 Assembly language Program for the following with proper comments. Make & State necessary assumptions. (Write Addressing MODEs of each Instructions ALSO.)
"Addition of list of 5 One Byte Numbers & Result is also one Byte." (03)

Q.No.4 (a) Trace Logic Diagram for the 4-Bit Adder -Subtractor Circuit. (02)
(b) Trace Logic Diagram for the 4-Bit Binary Incrementor Circuit using Half Adder. (01)

Q.No.5 (a) Explain in brief Construction & Working of Hard Disk & Pen Drive. (02)

(b) What is BIOS? Write its ROLE in BOOTING of the Computer. (02)

(c) Compare Assembler Vs CROSS-Assembler? Give one Example of CROSS-Assembler & Justify why it is called CROSS-Assembler? (01)

* END *

Department of Computer Science and Engineering
Motilal Nehru National Institute of Technology, Allahabad
End-semester Examination 2018-19
Foundation of Logic CA-31104
M.C.A. I Semester

All Questions are compulsory. Assume any missing data and mention it at the top of the answer.

Time: 3 Hours

M.M: 60

Q1

Aladdin, Abu and Jasmine find themselves trapped in a dark and cold dungeon (how they arrived there, is another story). After a quick search they find three doors, first one is red, second one is blue, and the third one is green. Behind one of the doors there is a path to freedom. Behind the other two doors, however, is an evil fire-breathing dragon. Opening a door to the dragon means death.

On each door there is an inscription:

✓ **Red Door: Freedom is behind This door.**

✗ **Blue Door: Freedom is not behind This door.**

✗ **Green Door: Freedom is not behind the blue door.**

Given the fact that at least one of the three statements on the three doors is true and at least one of them is false, which door would lead them to safety?

Q2

Use rules of logical equivalence to show the equivalence/non-equivalence of following statements (Please do not use truth table): **2*5 marks**

a) $(p \rightarrow q) \rightarrow (r \rightarrow s)$ and $(p \rightarrow r) \rightarrow (q \rightarrow s)$

b) $(p \rightarrow r) \vee (q \rightarrow r)$ and $(p \wedge q) \rightarrow r$

c) $(p \wedge q) \rightarrow r$ and $(p \rightarrow r) \wedge (q \rightarrow r)$

d) $\neg(p \oplus q)$ and $(p \leftrightarrow q)$

e) $\neg p \rightarrow (q \rightarrow r)$ and $q \rightarrow (p \vee r)$

Q3

a) Give an inductive definition for the relation R on set of non-negative integers **5+5 marks**
N. In each case, use your definition to show $X \in R$.

$$R = \{< a, b > | a = 2b\}; \quad X = < 8, 4 >$$

b) Use mathematical induction to show that $\neg(p_1 \vee p_2 \vee \dots \vee p_n)$ is equivalent to $\neg p_1 \wedge \neg p_2 \wedge \dots \wedge \neg p_n$ whenever p_1, p_2, \dots, p_n are propositions, where $n \geq 2$.

Q4

Answer these questions for the poset $(\{3, 5, 9, 15, 24, 45\}, |)$; where $a|b$ means **1*10 marks**
 a divides b .

a) Draw the Hasse diagram of this poset.

b) Find the maximal elements.

c) Find the minimal elements.

d) Is there a greatest element?

e) Is there a least element?

f) Find all upper bounds of $\{3, 5\}$.

g) Find the least upper bound of $\{3, 5\}$, if it exists.

h) Find all lower bounds of $\{15, 45\}$.

i) Find the greatest lower bound of $\{15, 45\}$, if it exists.

j) Is the given poset a lattice? Explain.

Q5 a) Show that if $a^2 = e$ for all a in a group $G = (A, *)$, then G is commutative.

2.5+2.5
marks

b) Show that the same is true in any monoid.

Q6 Let $(A, *)$ be a semi group. Furthermore, for every a and b in A
If $a \neq b$, then $a * b \neq b * a$
i.e., if $a * b = b * a$, then $b = a$

1+2+2
marks

a) Show that for every a in A

$$a * a = a$$

b) Show that for every a, b in A

$$a * b * a = a$$

c) Show that for every a, b, c in A

$$a * b * c = a * c$$

Q7 a) Give the recursive definition of the sequence $\{a_n\}$, $n = 1, 2, 3, \dots$ if

5+5 marks

i) $a_n = 6n$

ii) $a_n = 10^n$

iii) $a_n = 4n - 2$

iv) $a_n = n(n+1)$

v) $a_n = n^2$

b) The Game of Logic, has these two assumptions:

1. "Logic is difficult or not many students like logic."

2. "If mathematics is easy, then logic is not difficult."

By translating these assumptions into statements involving propositional variables and logical connectives, determine whether each of the following are valid conclusions of these assumptions:

i) That mathematics is not easy, if many students like logic.

ii) That not many students like logic, if mathematics is not easy.

iii) That if not many students like logic, then either mathematics is not easy or logic is not difficult.

*****End of Paper*****

Department of Computer Science and Engineering
MNNIT Allahabad
Mid-semester Examination 2018-19
Foundation of Logic CA-3104
M.C.A. I Semester

All Questions are compulsory. Assume any missing data and mention it at the top of the answer.

M.M: 20

Time: 90 minutes

- Q1** Suppose that on an island there are three types of people, knights, knaves, and normals (also known as spies). Knights always tell the truth, knaves always lie, and normals sometimes lie and sometimes tell the truth. Detectives questioned three inhabitants of the island—Amy, Brenda, and Claire—as part of the investigation of a crime. The detectives knew that one of the three committed the crime, but not which one. They also knew that the criminal was a knight, and that the other two were not. Additionally, the detectives recorded these statements: Amy: “I am innocent.” Brenda: “What Amy says is true.” Claire: “Brenda is not a normal.” After analyzing their information, the detectives positively identified the guilty party. Who was it? 5 marks
- Q2** Let $S(x)$ be the predicate “ x is a student,” $F(x)$ the predicate “ x is a faculty member,” and $A(x, y)$ the predicate “ x has asked y a question,” where the domain consists of all people associated with your school. Use quantifiers to express each of these statements. 5 marks
- a) Every faculty member has either asked Professor Miller a question or been asked a question by Professor Miller.
 - b) Some student has not asked any faculty member a question.
 - c) Some student has never been asked a question by a faculty member.
 - d) There is a faculty member who has asked every other faculty member a question.
 - e) There is a faculty member who has never been asked a question by a student.
- Q3** a) Let A and B be subsets of a universal set U . Show that $A \subseteq B$ if and only if $\overline{B} \subseteq \overline{A}$? 2.5+2.5 marks
- b) Suppose that A , B , and C are sets such that $A \oplus C = B \oplus C$. Must it be the case that $A = B$?
- Q4** Use mathematical induction to prove the following generalization of one of De Morgan’s laws: 5 marks

$$\overline{\bigcap_{j=1}^n A_j} = \bigcup_{j=1}^n \overline{A_j}$$

Whenever A_1, A_2, \dots, A_n are subsets of a universal set U and $n \geq 2$.

Motilal Nehru National Institute of Technology, Allahabad

School of Management Studies

M.C.A. Ist Semester, Odd Semester Examination, 2018-19

CA3102: Principle of IT Industry Management

Time: 3 hours

Max. Marks: 60

Note: Attempt all the questions.

1. Discuss the Hawthorne Experiments and critically examine Elton Mayo's contribution in Human Relations. (10)
2. Discuss the major factors affecting recruitment process. List out the relative merits and demerits of various sources of recruitment. (10)

Or

Critically examine Max Weber's Bureaucratic Management and discuss the relevance in the contemporary business world.

3. Define the concept of quality and project quality management. Differentiate between quality assurance and quality control. (10)

Or

Differentiate between pull and push based supply chain. Discuss the issue of bullwhip effect in supply chain management.

4. Briefly discuss the issue of carbon emission and global warming. List out the salient features of "The Water (Prevention and Control of Pollution) Act, 1974". (10)
5. Write a short note on any *four* of the following: (2.5×4 = 10)

- (a) Herzberg's Two Factor Theory
- (b) Batch Production System
- (c) Job Analysis
- (d) Enterprise Resource Planning (ERP)
- (e) Acceptance sampling
- (f) e-Marketing

6. Read the following case carefully and answer the questions given at the end of the case. (10)

Intel Corporation is best known for its processors. The sign "Intel Inside" is familiar to most people using a computer. There is, for example, the Pentium 3 and 4 and new

generation Itanium. For servers and workstations, Intel produces the Xeon. The colorful CEO Andy Grove led the company for many years. By 2001, however, the Chief Executive Officer Craig R. Barrett faces many challenges, including criticism.

The new strategy of moving into new markets such as information appliances, communication, and Internet services was costly and so far less than successful. In fact, the move beyond its core business may have detracted from its core business of computer chips. These new directions resulted in frequent reorganizations resulting in organizational uncertainties for the managers. While some think that the frequent changes were necessary to adapt to new situations and to keep the organization agile, others disagree.

Barrett's leadership and his move into various directions is quite different from Grove's carefully crafted strategy that focused on chips. Barrett's personal strength lies on manufacturing. He invested heavily in research and development. But new products such as the Itanium require several years before they show results, and Barrett has only a few more years before his retirement. Investing in new manufacturing technologies with the aim of achieving virtually automated plants resulted in the reduction of manufacturing cost of chips. But the PC market was stagnated in the early 21st century and wireless communication and cell phones were becoming important in the market. In the cell phone market, for example, Motorola and Texas Instruments were developing new digital signal processors and Intel had to work hard to catch up. A key to success of Intel may be a number of costly acquisitions, including Level One Communication. But the question remains if the heavy investment in new technologies will result in profitable businesses. This may determine the legacy of Craig Barrett.

Questions

- (a) What is your assessment of Barrett's performance and his vision for Intel? Is he the right person for the job at Intel? (3)
- (b) What are some problems associated with frequent reorganization? (3)
- (c) What are the pros and cons of focusing on distant futures and the heavy investment in the new technologies? (4)

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Motilal Nehru National Institute of Technology, Allahabad

School of Management Studies

M.C.A. Ist Semester

Mid Semester (Odd Semester) Examination, 2018-19

CA3102: Principle of IT Industry Management

Time: 1 hour 30 minutes

Max. Marks: 20

Note: Attempt all the questions.

1. Discuss the relevance of scientific management in contemporary business world. (5)
2. Briefly discuss 14 principles of Henry Fayol's administrative management (5)
(or)

Discuss the role of Maslow's need hierarchy theory in understanding and motivating employees in the organization.

3. Read the following case carefully and answer the questions given at the end:

Ford Motor Company has a long history of operating in Europe. Starting with export to the United Kingdom in 1903, the company established sales branches in France and England in 1908 and 1909. Later assembly plants were set up in those countries. In Germany, Ford established a plant in 1926. For several decades, the European operations were separated subsidiaries, each being accountable to the headquarters in the United States with little coordination among them. The rational for the organization structure was that each country's customers have different needs, tastes, and preferences. In addition, each country had its own tariff regulations.

As the European countries grew closer together, Ford viewed its European operation as a common market with a regional organization named Ford Europe with two big manufacturing facilities in Germany and England. But now, the companies in the European countries were not anymore considered separate and independent, but operated with a coordinated strategy. The aim was to achieve economies of scale and to reduce engineering costs. Ford designed similar car for Europe, instead of designing different ones for each countries. Models such as Fiesta, Capri and Escort were the result of this new organization

structure. According to the new strategy, products were largely designed in UK and Germany and manufactured in those countries as well as in Belgium and Spain. In 1994, a new strategy emerged that was named Ford 2000. In 1995, Ford merged its Automotive operating in North America with that of Europe. Again an important reason was to be more competitive and cost reduction through the elimination of unnecessary car platform and engine duplication. This meant fewer basic vehicle platforms as well as engines and transmissions. Moreover the regional profit centre concept was replaced product line concentration. Specially, the Ford Automotive Operation consisted of five vehicle centers with worldwide development of the cars and trucks. While four of those centers were in North America, the European center was responsible for developing small and midsized automobiles. Moreover, the North American center worked together with the Europeans to develop Mondeo, which was called the Mercury Mystique and the Ford Contour, produced in the U.S. and Mexico. These models were sold in some 78 countries.

But the Ford 2000 strategy and organization did not work well as shown by the 1998 performance especially in Europe where Ford was loosing market share to competitors such as General Motors and Volkswagen. Consequently, the newly elected Jacques Nasser reviewed the centralized Ford 2000 strategy and reintroduced the market focus that gives more autonomy to the regions especially in Europe where many o fits competitors introduced brands that address the needs of the customers. Nasser also created the Premium Auto Group for luxury cars that were more profitable than the low and mid-priced cars. The luxury car division consisted of cars such as Lincoln, Volvo, Jaguar and Aston Martin.

The 21st century brings new challenges for Ford. In the past, European carmakers were protected by quotas on Japanese cars. But these restrictions are going to be reduced or eliminated in the new century. This means that Japanese and Korean car manufacturer will market their cars in Europe. Also the introduction of the European currency will enable customers to compare prices across borders and select the best price. Finally, the global car industry is plagued with overcapacity that may result in fierce competition. Ford may have to review its current strategy.

Answer the following question:

- (a) What are the advantages and disadvantages of centralization and decentralization? (4)
- (b) What was rationale for the Ford 2000 program? (3)
- (c) Why did Ford establish a luxury car division? (3)

CSED, MNNIT Allahabad, Prayagraj, India
MCA I Semester, End Semester Examination, December 2018
Programming and Problem Solving (CS31101)

Time: Three Hours

Total Marks: 60

Note: Paper is printed on both sides. Questions carry equal weight. Read questions carefully. Understand a question before you start writing. Feel free to assume any missing data but categorically mention it under the heading 'Assumptions for this question'. Solving a problem correctly is necessary, but not sufficient, as it does not guarantee the maximum marks allotted for the problem. Sufficient credit is reserved in each case for smart algorithm, presentation, and good coding practice.

1. Answer the following

- a) Your clothes are dirty and you want to put them in the washing machine. You put the temperature at 50 C° and set the cycle at "coloured cottons"; you satisfy yourself that you don't have a full load, so you press the "half-load" button; finally, you start the washing cycle. Is this a program? Further, suppose your friend tells you to "do the washing, please". Is this a program? Justify your answers.
b) Are the rules of chess (or any other two/multi player game) a programming language? Justify your answer.

2. What is printed in the following with reason(s) for the answer given, presume necessary header files and/or other code.

- a) void main() {
 int i=7;
 printf("%d",i++*i++); }
- b) #define one 0
#ifdef one
printf("one is defined");
#ifndef one
printf("one is not defined");
- c) main() {
 static int i=3;
 printf("%d",i--);
 return i>0? main():0;}
- d) void main() {
 int x=7;
 while (x==1) x=x-1;
 printf("%d",x); }
- e) #define FOO(x,y) { printf(" %d ",y); x = y; }
int main(int argc, char**argv) {
 int a = 2;
 int b = 3;
 FOO(a,++b); FOO(a,++b);
 return 0;}
- f) void foo(int x, int y) { printf(" %d ",y); x = y; }
int main(int argc, char**argv) {
 int a = 2;
 int b = 3;
 foo(a,++b); foo(a,++b);
 return 0;}

3(a) A decimal number between 0 and 32 exclusive can be expressed in binary system as $x_4x_3x_2x_1x_0$, where x_i 's are either zero or one. Write a C program that accepts (from the terminal) a decimal number in the above range and prints out the equivalent binary representation. For example if the decimal is 17, then the program should print 10001. The program must also print an error message if the input is outside the range.

3(b). Write a C program that calculates the sum of digits of an integer.

4. A point in a two-dimensional coordinate system can be represented by an x and a y coordinate. Define a structure point which represents such a point. Write a function points_equal() which takes as parameters two points and returns true if they are identical and false if they are not. Further, a rectangle in a two-dimensional coordinate system can be represented by two points: the lower left corner and the upper right corner. Define a structure rectangle which represents as two points, using the point structure then write a function rectangles_equal() which takes as parameters two rectangles and returns true if they are identical and false if they are not. Finally, write a program which lets users to check the functionality of above structures and functions.

5. Write programs for **any three** of the following with appropriate comments:

- a) Reads a string and prints the number of characters in it.
- b) Reads a string and prints it vertically on the console
- c) Reads a string and sets all vowels equal to a space.
- d) Reads a string and computes the frequency of lower case letters in it.

6. Write C code to create singly linked list for five of your friends containing their name and age as information. What changes one needs to do in node structure to make it useful for doubly linked list?

7. Loops are very important constructs in the programming and problem solving. Explain each of these with their utility by writing C or C++ example code.

8. Divide and conquer is a very famous strategy for solving bigger software problems. How functions help in C programming environment in using and implementing above strategy? Explain in detail what precautions a programmer must take when using functions in a C program for solving a problem.

9. Write one statement each explaining any 24 C++ key words of your choice.

10. Write down an expression for (a) x is a positive odd number (b) x is a positive number not divisible by 10 (c) y is a legitimate month number (d) y is not a legitimate month number (e) y is a leap year in the 17th century (f) x is less than -2000 or greater than or equal to 40 (g) x is not a year in this century (h) x is a day number representing Tuesday or Saturday , in a C++ program and to check for their validity.

Declaration

I am here to learn. I value Examination Ethics and practice it.

Signature

Name and Registration No.

Time: 1 Hour & 30 Minutes

Total Marks: 20

Note: Question paper is printed on both the sides. Questions carry equal weight. Feel free to assume any missing data but categorically mention it under the heading 'Assumptions for this question'. Use space of answer sheet judiciously.

- 1. Explain the C programming constructs for selection, which allow you to choose between two or more alternatives and thereby help you in making decisions. (3)**
Write the output of the following program. (1)

```
#include<stdio.h>
int main(){
char c='a';
switch(c){
case 97:
printf("97");
break;
case 98:
printf("98");
break;
case 99:
printf("99");
break;
default:
printf("default");}
}
```

97

- 2. Write a program (with necessary comments) to find the number of perfect squares between given two numbers A and B (both inclusive). A number is called a perfect square if it can be written as x^*x for some integer x.**
Constraints: Both A and B are positive. They both are less than 100,000.

Input: Two numbers A and B separated by a space

Output: Count of the number of perfect squares

Example 1: Input: 3 10 Output: 2

Example 2: Input: 16 70 Output: 5

- 3. Demonstrate the use of array, while illustrating the working of bubble sort, in sorting the six numbers 9 2 8 3 7 4. (3)**

What will happen when the following program is compiled and executed? (1)

```
#include<stdio.h>
int main(){
int a[]={1,2,3,4,5};
int b[]={1,2,3,4,5};
if(a==b){ printf("yes"); }  
else{  
printf("no"); }  
return 0;
}
```

Error

No

- 4. Demonstrate working of function call with examples. Your first example should show values being passed to the called function, while the second example should show variable references being provided to the called function.**

5. Write output, for each of the following programs, with necessary explanation, as to why your answer is correct

(a)

```
#include<stdio.h>
int main()
{
    int x=10;
    int a=1, b=2, c=3, d=4;
    x+=a=b*c+d-a;
    printf("%d,%d", a, x);
}
```

9,19

$$\begin{aligned}x &= x + a = 9 \\x &= 19\end{aligned}$$

(b)

```
#include<stdio.h>
int main()
{
    float a=1.1;
    int b=1.1;
    if(a==b)
        printf("YES");
    else
        printf("NO");
}
```

NO

$$\begin{aligned}a &= 1.1 \\b &= 1\end{aligned}$$

(c)

```
#include<stdio.h>
int main()
{
    int i, x=10;
    for(i=0; i<2; i++);
    {
        x++;
    }
    printf("%d", x);
}
```

11

(d)

```
void main(){
    int a, b;
    a=3,1;
    b=(5,4);
    printf("%d", a+b);
}
```

7

$$\begin{aligned}a &= 3 \\b &= 4\end{aligned}$$

Declaration

I value **Examination Ethics** and practice it.