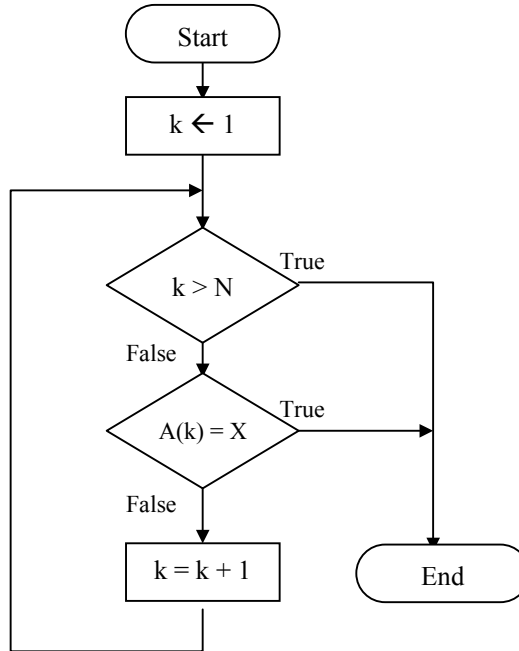


**ICT Proficiency Examination  
Sample Questions**

**Computer Programming**

**Part 1 - General Bodies of Knowledge**

1. Integers are stored in the first through nth elements of array A (where  $N > 1$ ). The flowchart below checks to see which element contains the value X. Which answer below describes the result obtained by executing this flowchart?



- a. If the value X does not exist in the array, “1” is stored in k.  
b. If the value X does not exist in the array, N is stored in k.  
c. If the value X exist in two elements, the first element and the nth element, “1” is stored in k.  
d. If the value X exists in two elements, the first element and the nth element, N is stored in k.
2. Which of the following logical expressions is identical to  $X \cdot \bar{Y} + \bar{X} \cdot Y$ ?
- a.  $(X + Y) \cdot (X + Y)$   
b.  $(X + \bar{Y}) \cdot (X + \bar{Y})$   
c.  $(\bar{X} + Y) \cdot (\bar{X} + Y)$   
d.  $(X + Y) \cdot (X + Y)$
3. What does the “window” field in a Transport Control Protocol segment indicate?
- a. Number of 32-bit words in the header.  
b. Number of the called port.  
c. Number used to ensure correct sequencing of the arriving data.  
d. Number of octets that the sender is willing to accept.
4. Which Windows NT command-line switch does not verify files as they are copied to the setup boot floppy disk?
- a. /C

- b. /F
  - c. /O
  - d. /x
5. What transport protocol exchanges datagrams without acknowledgements or guaranteed delivery?
- a. UDP
  - b. TCP
  - c. IRQ
  - d. LLC
6. What OSI layer establishes, manages and terminates session between applications?
- a. Presentation
  - b. Session
  - c. Application
  - d. Transport
7. What is the equivalent binary number of the hexadecimal number BEEF<sub>16</sub>?
- e. 1001 1110 1110 1101<sub>2</sub>
  - f. 1011 1101 1101 1111<sub>2</sub>
  - g. 1011 1110 1110 1111<sub>2</sub>
  - h. 1010 0110 0110 1101<sub>2</sub>
8. What separates the part of a session?
- a. Checkpoints
  - b. Spacers
  - c. Pointers
  - d. Sequence numbers
9. What is the time between the user's request and the computer's reply called?
- a. Concurrent time
  - b. Response time
  - c. Allocation time
  - d. Run time
10. Charles Babbage invented the:
- a. Mark I
  - b. Difference engine
  - c. Adding machine
  - d. ENIAC

## **Part 2 – Visual Basic**

### *Objective*

To develop a Time and Billing System for ASC Consulting.

### *Specifications*

- Regular office hours are from 8:00 AM – 5:00 PM, Monday to Friday.
- Billing rates are based on the hourly rates of the employees.
- If an employee works on a Saturday, billing rate is 30% more than the standard rate.
- An employee can work on multiple projects at a given time. When working on a one project, the employee logs into the system to record the date and time. When the employee clicks “Log Out”, the system then computes and records the billing hours spent for that project.
- Management reports are printed on a regular basis.
- Billing invoices are prepared, printed, and delivered to clients on a monthly basis.
- Access Level:

Employees	Time Record Module
Managers	All Modules

### *Required*

**Create the time and billing system for ASC Consulting. The system should function as follows:**

- Compute the billing hours spent by an employee on a specific project.
- Generate reports such as:
  - List of clients
  - List of employees
  - List of projects
  - Time sheet of employees on a monthly basis
- Print billing invoice on a monthly basis

## Part 2 - C LANGUAGE

Write a program that will convert a Roman number into its equivalent Hindu Arabic number, and vice versa. The program should ask the user what type of number to convert (Roman or Hindu Arabic). The program should display the number to convert and the converted number, and asks the user if he would want to convert another number.

### Sample output:

Convert a number into:

- [1] Roman
- [2] Hindu Arabic

Choice [ 1 ]

Enter the Roman number to convert:

**MCMLXXIV**

The Roman number **MCMLXXIV** is equal to **1974** in Hindu Arabic.

Try again? <Y/N>: [ Y ]

Convert a number into:

- [1] Roman
- [2] Hindu Arabic

Choice [ 2 ]

Enter the Hindu Arabic number to convert:

**2197**

The Hindu Arabic number **2197** is equal to **MMCXCVII** in Roman number.

Try again? <Y/N>: [ N ]

## Systems Analysis & Design

1. One of the fact-finding techniques used in systems investigation is \_\_\_\_\_.  
It is a form of conversation/questioning in which information is elicited.
  - A. inquisition
  - B. interview
  - C. interrogation
  - D. examination
2. Comparing Costs and benefits, and finding the \_\_\_\_\_ factor that equates the two, shall give the Internal Rate of Return (IRR).
  - A. present value
  - B. net present value
  - C. cumulative present value
  - D. cumulative net present value
3. As a process, system design goes through two stages, namely: logical design and physical design. How do you differentiate logical design from physical design?
4. Customers who borrow at least 5 videotapes a week and in addition, either have a good payment history or have referred at least 2 new customers are given priority treatment. Otherwise, they are given normal treatment. On the other hand, customers who have referred at least 5 new customers regardless of the number of videotapes borrowed may be given priority treatment.

Do any of the following: Structured English or Decision Tree for the above process.