

# COMPUTER SCIENCE

For Class X (marks 55)

## 1. Data Representation

- i. Data definition:
  - Numeric, alphabetic and alphanumeric
- ii. Number systems:
  - Decimal, Binary, Octal & Hexadecimal
- iii. Number system conversion
- iv. Representation of numbers using (1's) and (2's) complements
- v. Binary arithmetic:
  - Addition, subtraction, multiplication and division
- vi. Fixed and floating point number representation
- vii. Code:
  - Coding scheme (Binary Coded Decimal, ASCII)

## 2. Boolean Algebra

- i. Boolean constant, variable, logical operators, Boolean expressions, Boolean functions
- ii. Laws and theorems of Boolean algebra
- iii. Truth tables
- iv. Simplification of Boolean functions, laws and Karnaugh maps

## 3. Problem Solving

- i. Defining the problem
- ii. Analysis of the problem, illustrated with examples
- iii. Algorithms
- iv. Flow charts:
  - Flow charts symbols, examples of flow charts using daily life applications
- v. Computer programming:
  - Conversion of flow chart, algorithm into computer language instructions
- vi. Running and debugging programs
- vii. Implementation
- viii. Documentation

## 4. Data Types Assignment (INPUT/OUTPUT) Statement

- i. Character sets, reserved words, commands and statements
- ii. Numeric and strings
- iii. Constants and variables
- iv. Operators: arithmetic, relational and logical
- v. Hierarchy of operators, expressions
- vi. Arithmetic, relational and logical
- vii. Assignment statements
- viii. Input, READ-DATA
- ix. PRINT, PRINT USING

## 5. Control Statements

- i. Go to, ON – GO TO
  - ii. If – Then – Else, on Error – Go to...
  - iii. For ... Next statement, While and Wend statement, Loops and nested loops
- 6. Arrays**
- i. One and two – dimensional arrays
  - ii. Reading, writing and manipulation of arrays
- 7. Sub-Program and File Handling**
- i. Functions:
    - Built-in functions (ABS, INT, RND, SQR, LOG, EXP, SIN, COS, TAN, CINT, INT, SGN, FIX, HEX\$, LEFT\$, MID\$, CHR\$, STR\$, TIME\$, INKEY\$, SPACE\$) and user defined functions
  - ii. Subroutines
  - iii. Reading and writing into files
- 8. Graphics**
- i. Sketching and drawing of graphics using utilities such as DRAW and COLOR
  - ii. Generating lines, rectangles, circles etc

## **PRACTICALS**

For Class X (marks 20)

1. Writing a program to demonstrate simple arithmetic operations (e.g. calculation of the area of a triangle, volume of a cylinder and speed of an object, conversion of temperature from °C to °F and vice-versa).
2. Writing a program to demonstrate the use of formatted input/output statements, (calculation of class grades for different students, selection of the largest number out of given 10 numbers without using a list).
3. Writing a program that uses iteration statements (write a program that reads 5 values from user and find the mean value and compare the mean value against an actual value of 9.8 meters/sec<sup>2</sup>).
4. Writing a program that reads 10 values into an array and after doing some arithmetic operations, prints the desired results.
5. Repeating Experiment No.3 using a sub-routine, named average and call this sub-routine in the main program.
6. Drawing a line, a circle and a rectangle using system defined built-in functions for graphics.

## **RECOMMENDED REFERENCE BOOKS FOR CLASS X**

The question papers will be syllabus oriented. However, the following books are recommended for reference and supplementary reading:

1. Computer Science  
National Book Foundation, Islamabad.
2. Computer Science  
Punjab Text Book Board, Lahore.

3. Computer Science  
NWFP Textbook Board, Peshawar.
4. Computer Science  
Baluchistan Textbook Board, Quetta.
5. A Textbook of Computer Science for class IX-X,  
Prof. Shaukat Ayub Burki,  
Gaba Educational Book,  
Urdu Bazaar, M.A. Jinnah Road, Karachi

Federal Board SSC-II Examination  
Computer Science Practical  
Model Question Paper

Time allowed: 2 hours

Total Marks: 20

**Note:** Attempt any **THREE** questions.

**Q.1** Write the following program on computer by converting the same into FOR-NEXT loop: (5)

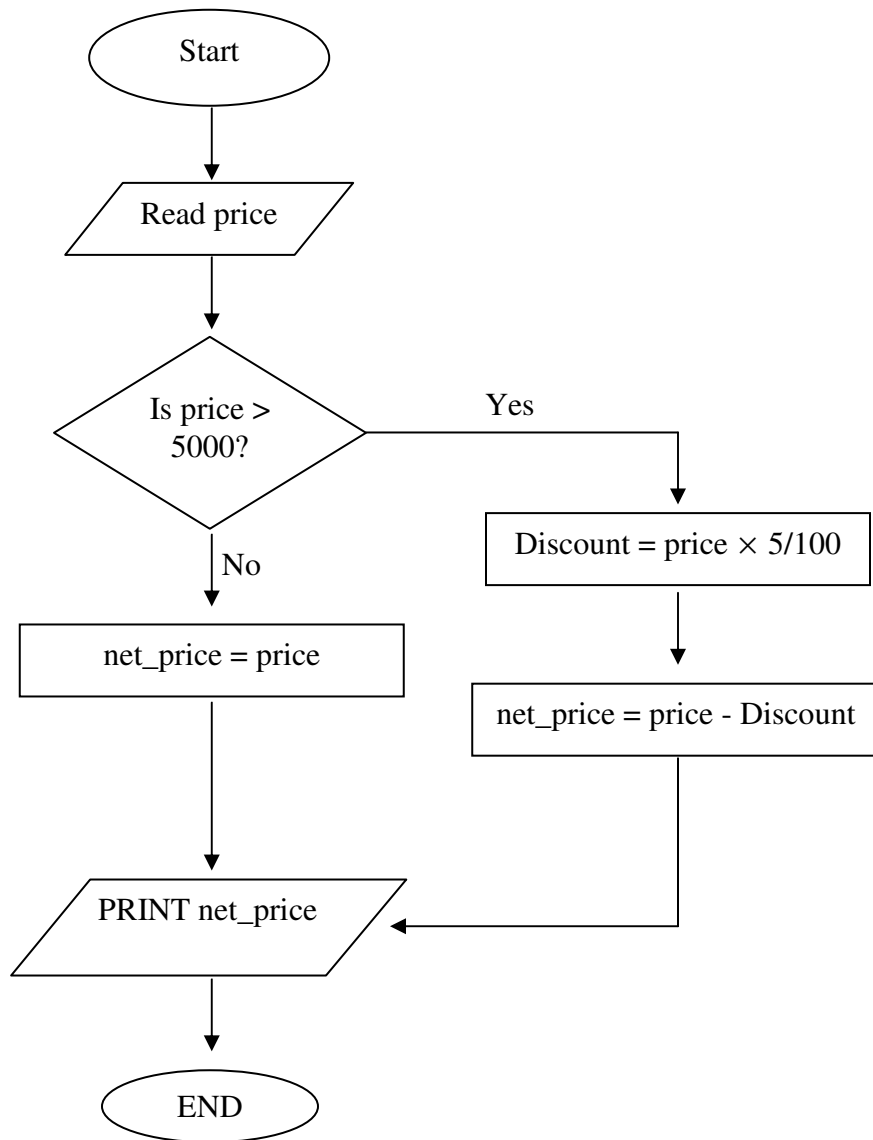
```
10  CLS
20  COUNT = 1
30  SUM = 0
40  WHILE COUNT <= 10
50  SUM = SUM + COUNT
60  COUNT = COUNT + 1
70  WEND
80  PRINT "SUM ="; SUM
90  END
```

**Q.2** Find out the smallest number in an array of ten elements by writing a program in BASIC. (5)

**Q.3** Draw five concentric circles in different colours using CIRCLE statement in BASIC. (5)

**Q.4** Convert the following flowchart into BASIC program using computer:

**(5)**



Viva Voce

**(3)**

Note Book

**(2)**