

**B.Sc. Semester I (Honours) Examination, 2018-19**

**COMPUTER SCIENCE**

**Course ID : 11512**

**Course Code : SHCSC-102C-2(T)**

**Course Title : Computer System Architecture**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer *any five* questions from the following: 1×5=5
    - (a) What is demultiplexer?
    - (b) What is sequential circuit?
    - (c) What is RISC?
    - (d) Convert  $(E5.D)_{16}$  to binary.
    - (e) What is EPROM?
    - (f) What is 2's complement?
    - (g) What is register?
    - (h) What is counter?
  
  2. Answer *any two* questions from the following: 5×2=10
    - (a) What is combinational circuit? Distinguish between combinational circuit and sequential circuit. 2+3=5
    - (b) Write down the truth table and logic circuit diagram of J-K flip-flop. 2+3=5
    - (c) Distinguish between RAM and ROM.
    - (d) Write short note on Direct Memory Access (DMA).
  
  3. Answer *any one* question from the following: 10×1=10
    - (a) What is half-adder? What is full-adder? Design a full-subtractor circuit showing the necessary steps. 2+2+6=10
    - (b) Write short note on different types of system Bus. 10
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**B.Sc. Semester I (Honours) Examination, 2018-19**

**COMPUTER SCIENCE**

**Course ID : 11514**

**Course Code : SHCSC-103GE-1A(T)**

**Course Title : Computer Fundamentals**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer *any five* questions from the following: 1×5=5
    - (a) Write two functions of CPU.
    - (b) What is hit ratio?
    - (c) Write differences between system and application software.
    - (d) What is radix?
    - (e) What is cloud computing?
    - (f) What do you mean by system bus?
    - (g) Convert  $(103\cdot25)_{10}$  to  $(?)_8$ .
    - (h) Why operating system is called as “Resource manager”?
  
  2. Answer *any two* questions from the following: 5×2=10
    - (a) Subtract  $(13\cdot25)_{10}$  from  $(21\cdot50)_{10}$  using 2’s complement method. Add  $(101101\cdot1011)_2$  and  $(110101\cdot1101)_2$ .
    - (b) Discuss different types of system software briefly.
    - (c) Explain different CPU registers briefly.
    - (d) Write short notes on OCR, Bar-Code Reader.
  
  3. Answer *any one* question from the following: 10×1=10
    - (a) Explain bus organization of a computer.
    - (b) Draw and explain block diagram of a Computer.
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**B.Sc. Semester I (Honours) Examination, 2018-19****COMPUTER SCIENCE****Course ID : 11514****Course Code : SHCSC-103GE-1B(T)**

Course Title : Introduction to Programming

**Time: 1 Hour 15 Minutes****Full Marks: 25***The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer *any five* questions from the following: 1×5=5
    - (a) What is algorithm?
    - (b) What is function?
    - (c) Write down the difference between while and do-while loop.
    - (d) What is the use of `stdio.h`?
    - (e) What is structure?
    - (f) What are the characteristics of second generation computers?
    - (g) What is pointer?
    - (h) Write full form of ROM and ALU.
  
  2. Answer *any two* questions from the following: 5×2=10
    - (a) Draw the flow-chart to check whether a given number is prime or not?
    - (b) Distinguish between call by value and call by reference. Write a C function to concatenate two strings. 2+3=5
    - (c) Write short note on array and its use.
    - (d) Write short note on Input and Output devices.
  
  3. Answer *any one* question from the following: 10×1=10
    - (a)
      - (i) Write a program in “C” to find the maximum of a given array of numbers.
      - (ii) Write a program to find whether a given string is Palindrome or not. 5+5=10
    - (b) Write a program in “C” to find the factorial of a number:
      - (i) Using Recursion
      - (ii) Without using Recursion.
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**B.Sc. Semester I (General) Examination, 2018-19**

**COMPUTER SCIENCE**

**Course ID : 11518**

**Course Code : SPCSC-101C-1A(T)**

**Course Title : Problem Solving With Computers**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* questions from the following: 1×5=5
  - (a) What is the full form of LSI?
  - (b) Name different types of Computers.
  - (c) What is the function of a register?
  - (d) What do you mean by flowchart?
  - (e) What is an algorithm?
  - (f) Write the full form of ALU.
  - (g) What do you mean by structured programming?
  - (h) What is the function of an interpreter?
  
2. Answer *any two* questions from the following: 5×2=10
  - (a) Describe the various generations of computers in brief.
  - (b) Draw the block diagram of a Von Neumann computer and state the functions of different components in brief.
  - (c) Distinguish between top-down and bottom up design methodology.
  - (d) Write a program in Python to compute the factorial of a given number.
  
3. Answer *any one* question from the following: 1×10=10
  - (a) Write an algorithm to compute the sum of the following series upto  $n$  terms:  
$$-x + \frac{x^2}{2} - \frac{x^3}{3} + \frac{x^4}{4} \dots\dots\dots$$
Distinguish between algorithm and flowchart.
  - (b) Write a Python program to compute the sum of two compatible matrices.

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**B.Sc. Semester I (Honours) Examination, 2018-19**

**COMPUTER SCIENCE**

**Course ID : 11511**

**Course Code : SHCSC-101C-1(T)**

**Course Title : Programming Fundamentals With C/C++**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer *any five* questions from the following: 1×5=5
    - (a) Why “C” is a middle-level language?
    - (b) Why “C” is a free-form language?
    - (c) Give an example of ternary operator in C.
    - (d) What is pointer?
    - (e) Distinguish between character and string.
    - (f) What is object?
    - (g) What do you mean by inheritance?
    - (h) What do you mean by polymorphism?
  
  2. Answer *any two* questions from the following: 5×2=10
    - (a) Describe some operations valid in pointer arithmetic.
    - (b) Distinguish between function-oriented and object oriented programming.
    - (c) Discuss different types of structures available in C.
    - (d) Write a C-program to reverse a string using pointers.
  
  3. Answer *any one* question from the following: 10×1=10
    - (a) Write a C-program to compute GCP of two numbers. Modify the program for LCM calculation.
    - (b) Write a C++ program to overload binary minus (“-”) operator to subtract two 3D vectors.”
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