Roll No. ....

MAR-21-210005

B. Tech. EXAMINATION, March 2021

Semester I & II (CBCS)

COMPUTER FUNDAMENTALS AND

PROGRAMMING IN C++

CS-101

Time : 3 Hours *Maximum Marks :* 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all. selecting *one* question from each Sections A. B. C and D. Q. No. **9** is compulsory.

Section A

1. Why is computer known as data processing system ? What are the main characteristics of computer ? Explain in detail various types of languages used in computer. **10**

2. Define operating system. Why is operating system required in a computer ? Explain the main functions of operating system. **10**

Section B

3. Differentiate between the following terms :

   (i) RAM and ROM.

   (ii) 32-bit and 64-bit processors.

   (iii) Binary number and Hexadecimal number.

   (iv) Kilo Byte, Mega Byte, Giga Byte and Tera Byte. **10**

4. (a) Define Processor. What do you mean by processor clock speed ? Explain. **5**

   (b) Why is cache memory required ? How is cache memory different from main memory ? **5**

Section C

5. (a) Define Variable. How can variables be declared ? Write down a syntax that assigns a value to the variable. **5**

(b) Write a C++ program to swap three variables a, b and c in such a way that a has the value of c, b has the value of a and c has the value of b. **5**

6. Explain the following terms with their syntax :

(i) Type casting

(ii) Signed and unsigned operator

(iii) C++ tokens

(iv) Cascading of I/O operators. **2½×4=10**

Section D

7. Define Function. Explain the difference between call by reference and call by value. How can function be called with arrays ? https://www.hptuonline.com **10**

8. Compare the following pairs of control statements in terms of their functions :

(i) while and do-while.

(ii) while and for.

(iii) break and goto.

(iv) break and continue.

(v) continue and goto. **10**

(Compulsory Question)

9. Short answer type questions : **10×2=20**

(i) How is a compiler different from interpreter ?

(ii) Define the structure of a C++ program.

(iii) What is the syntax for declaring structure variable ?

(iv) What is the difference between volatile and non-volatile memory ?

(v) Define utility software.

(vi) What is the use of cout and cin in C++ code ?

(vii) Define Array. How is it advantageous in C++ program ?

(viii) Convert $(101000011)_2$ into $(?)_{10}$ and $(25863)_{10} = (?)_{16}$.

(ix) Write a syntax for passing arguments to a function.

(x) How is C++ different from C ?