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|  |  | No. of Printed Pages – **3** | | | | | **CS101** | | | | | | | |
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| **B. TECH.**  **SECOND SEMESTER EXAMINATION, 2016-17**  **COMPUTER PROGRAMMING** | | | | | | | | | | | | |
| Time : **3 Hours** | | | | Max. Marks : **60** | | | | | | | | |
| **Note :** **(i)** Attempt **ALL** questions.  **(ii)**  Choices are given in each question set. | | | | | | | | | | | | |
| **1.** Attempt any **Four** of the following questions: **3 x 4 = 12**  **(a)** Draw the functional block diagram of a digital computer and discuss its components in brief.  **(b)** What do you mean by Memory? Differentiate between Primary memory and Secondary memory.  **(c)** What are Translators? Differentiate between Compiler and Interpreter.  **(d)** Discuss the following: Operating system and its functions.  **(e)** Construct a flowchart and write an algorithm to print first N Fibonacci numbers.  **(f)** Write short notes on the following:  **(i)** URL **(ii)** Search engines  **(iii)** Firewalls  **2.** Attempt any **Four** of the following questions: **3 x 4 = 12**  **(a)** What is the difference between a definition and declaration of a Variable? Explain by giving suitable example.  **(b)** Describe the conditional operator in C.  **(c)** What is the difference between scanf() function with %s and gets() function used in C language? | | | | | | | | | | | | |
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| **(d)** Write a C program to swap two integer variables:  **(i)** Using third variable.  **(ii)** Without using third variable.  **(e)** Write a C program to calculate the sum of the following series up to 50 terms: SUM = –13 + 33 – 53 + 73 – 93 + 113 – ........  **(f)** What is the role of SWITCH statement in C programming language? Simulate calculator using switch statement.  **3.** Attempt any **Two** of the following questions: **6 x 2 = 12**  **(a)** What do you mean by Actual parameters and Formal parameters? Explain with a suitable example.  **(b)** What are the main principles of Recursion? Write a program in C to calculate GCD (Greatest Common Divisor) using recursive functions.  **(c)** What is a Pointer? How pointers are declared in C programming language? Write a C program to swap the values of two variables making use of pointers.  **4.** Attempt any **Two** of the following questions: **6 x 2 = 12**  **(a)** Write a program in C to multiply two matrices of N x N dimension.  **(b)** Write a C program to read 10 integer numbers and print their average, minimum and maximum numbers.  **(c)** Write a C program to count number of vowel, consonant, digits and spaces in a string.  **5.** Attempt any **Two** of the following questions: **6 x 2 = 12**  **(a)** Declare a structure which contains the following members and write a program in C to list all students who scored more than 75 marks.  Roll No, Name, Father's Name, Age, City, Marks. |  | **(b)** What is Union? How does it differ from Structure? Explain advantage and disadvantage of a Union over a Structure.  **(c)** Briefly discuss Memory allocation in C language. Write a program to demonstrate working of malloc(). |
| **2** |  | **3** |