

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: MCA/MSC
BRANCH: MCA/MATHS**

**SEMESTER : I
SESSION : MO/18**

SUBJECT: CA401 PROGRAMMING WITH C

TIME: 3.00 HRS

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Broadly classify the computer system into two parts. Also make a comparison between a human body and the computer system thereby explaining what each part does. [5]
- Q.1(b) Define an algorithm. Discuss the various elements/properties of an algorithm. [5]
- Q.2(a) A company decides to give bonus to all its employees on Diwali. A 5% bonus on salary is given to the male workers and 10% bonus on salary to the female workers. Write a C program to enter the salary and sex of the employee. If the salary of the employee is less than Rs. 10,000 then the employee gets an extra 2% bonus on salary. Calculate the bonus that has to be given to the employee and display the salary that the employee will get. [5]
- Q.2(b) Change the following for loop into a while loop. Also convert the for loop into a do-while loop. [5]
`int l; for(l =10; l>0; l--) printf("%d", l);`
- Q.3(a) Differentiate between: [5]
(1) Function declaration and function definition.
(2) Call by value and Call by reference
- Q.3(b) Write a function `leap_year` which takes the year as its argument and checks whether the year is a leap year or not and then displays an appropriate message on the screen. [5]
- Q.4(a) Write a C program to read a sentence. Then count the number of words in the sentence. [5]
- Q.4(b) Write a recursive C program to calculate GCD of two numbers. [5]
- Q.5(a) Declare a structure `fraction` that has two fields- `numerator` and `denominator`. Create two variables and compare them using function. Return 0 if the two fractions are equal, -1 if the first fraction is less than the second and 1 otherwise. You may convert a fraction into a floating point number for your convenience. [5]
- Q.5(b) Enlist at least four file operations. Write a C program to read a file and display its contents on the screen. Give sufficient comments in your program to make it understandable to others. [5]

:::28/11/2018:::M