On Practical Exam day – Come with

- ***Laptop** – If personally available (with all setting of subject wise software & all Subject programs)*
- ***DVD – Subject Wise***
- ***Pen Drive** – All Programs, Setup / Installation File*
- ***Practical File** – Best File cover, All pages size – A4 including index page, Properly aligned, Left side – White Drawing sheet 70GSM on which output, Right side – Ruled paper on which coding of program.*
- ***Left side make algorithm and output screen.***
- ***Right side write algorithm and source code of C language.***
- ***Class Rough copy** – date wise noting.*

Make DVD --

Folder – 18030C040048 – Hemant Jain

Main Folder – C Language

Sub Folders –

1. *Control Loop*
2. *Inheritance*
3. *Package*
4. *Applet*
5. *Multithreading*
6. *JSP*
7. *Servlet*
8. *Database Connectivity*

"C Language Programming"

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

THE DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DIPLOMA OF

COMPUTER SCIENCE AND ENGINEERING

Submitted to

Computer Science and Engineering Department

GOVT. POLYTECHNIC COLLEGE,

UJJAIN (M.P.)

Guided By:
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Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal (M.P.)

May, 2018

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May, 2022

Govt. Polytechnic College, Ujjain – 4560110 (M.P.)

Computer Science and Engineering Department

C Language Practical Assignment – IInd Semester

Submit in Soft copy (DVD) and Hard Copy (Practical File)

Last Date of Submission -- 25/04/2022

Hands on Practice / Labs

- *What is an algorithm?*
- *Explain need of an algorithm?*
- *Write advantage & disadvantages of an algorithm?*
- *Write an algorithm to find average age of a group of 10 players?*
- *Write algorithm to this problem: Sanjay goes to market for buying some fruits and vegetables. He is having a currency of Rs 500 with him for marketing. From a shop he purchases 2.0 kg Apple priced Rs. 50.0 per kg, 1.5 kg Mango priced Rs.35.0 per kg, 2.5 kg Potato priced Rs.10.0 per kg, and 1.0 kg Tomato priced Rs.15 per kg. He gives the currency of Rs. 500 to the shopkeeper. Find out the amount shopkeeper will return to Sanjay. and also tell the total item purchased.*
- *Find factorial of N?*
- *Explain steps involve in drawing of a flowchart.*
- *Explain symbols used in a flowchart.*
- *Explain uses of Flowchart.*
- *Write advantage & disadvantages of a flowchart?*
- *Draw a flowchart to find the sum of first 100 natural numbers.*
- *Draw a flowchart to find the largest of three numbers x, y and z.*
- *Draw flowchart for the problem of determining prime number?*
- *Draw a flowchart which generates first 50 items of the Fibonacci series: 1, 1, 2, 3, 5, 8,…?*
- *Design an algorithm to convert a decimal number, n, to binary format?*
- *Write an Algorithm & draw a Flowchart to find the area of a circle of radius r.*
- *Write an Algorithm & draw a Flowchart to Convert temperature Fahrenheit to Celsius.*
- *Write an Algorithm & draw a Flowchart to which gets two numbers and prints sum of their value.*

- *Write an Algorithm & draw a Flowchart to find the greater number between two numbers.*
- *Write an Algorithm & draw a Flowchart to printing even numbers between 9 and 100:*
- *Write an Algorithm & draw a Flowchart to printing odd numbers less than a given number. It should also calculate their sum and count.*
- *Write an Algorithm & draw a Flowchart to calculate the average from 25 exam scores.*
- *Write an Algorithm & draw a Flowchart to find the sum of two numbers*
- *Write an Algorithm & draw a Flowchart to convert temperature from Celsius to Fahrenheit*
- *Write an Algorithm & draw a Flowchart to convert temperature from Fahrenheit to Celsius*
- *Write an Algorithm & draw a Flowchart to find Area and Perimeter of Square*
- *Write an Algorithm & draw a Flowchart to find Area and Perimeter of Rectangle*
- *Write an Algorithm & draw a Flowchart to find Area and Perimeter of Circle*
- *Write an Algorithm & draw a Flowchart to find Area & Perimeter of Triangle*
- *(when three sides are given)*
- *Write an Algorithm & draw a Flowchart to find Simple Interest*
- *Write an Algorithm & draw a Flowchart to find Compound Interest*
- *Write an Algorithm & draw a Flowchart to Swap Two Numbers using Temporary Variable*
- *Write an Algorithm & draw a Flowchart to Swap Two Numbers without using temporary variable*
- *Write an Algorithm & draw a Flowchart to find the smallest of two numbers*
- *Write an Algorithm & draw a Flowchart to find the largest of two numbers*
- *Write an Algorithm & draw a Flowchart to find the largest of three numbers*
- *Write an Algorithm & draw a Flowchart to find Even number between 1 to 50*
- *Write an Algorithm & draw a Flowchart to find Odd numbers between 1 to n where n is a positive Integer*
- *Write an Algorithm & draw a Flowchart to find sum of series 1+2+3+.....+N*
- *Write an Algorithm & draw a Flowchart to find sum of series 1+3+5+.....+N, Where N is positive odd Integer*

- *Write an Algorithm & draw a Flowchart to find sum of series 1 – X + X2 –X3 ….XN*
- *Write an Algorithm & draw a Flowchart to print multiplication Table of a number*
- *Write an Algorithm & draw a Flowchart to generate first n Fibonacci terms 0,1,1,2,3,5…n (n>2)*
- *Write an Algorithm & draw a Flowchart to find sum and average of given series of numbers*
- *Write an Algorithm & draw a Flowchart to find Roots of Quadratic Equations AX2+BX+C=0*
- *Write an Algorithm & draw a Flowchart to find if a number is prime or not*
- *Write an Algorithm & draw a Flowchart to find GCD and LCM of two numbers*
- *Write an Algorithm & draw a Flowchart to find Factorial of number n (n!=1x2x3x…n)*
- *Write an Algorithm & draw a Flowchart to find all the divisor of a number*

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Project –

1. *Mark sheet*
2. *Payroll*
3. *Telephone Directory*

All program writes with menu driven programming –

Program name – while.c, for.c, if.c, array.c, function.c, io.c

Menu Driven Programming style –

1. *To calculate area of circle*
2. *To calculate area of rectangle*
3. *To calculate simple interest*
4. *To calculate compound interest*

1. *Write an algorithm, Flow Chart and C language program to print Hello word.*
2. *Write an algorithm, Flow Chart and C language program to read input from keyboard of various data types and print them.*
3. *Write an algorithm, Flow Chart and C language program to print sum of first n natural numbers.*
4. *Write an algorithm, Flow Chart and C language program to find year is leap or not?*
5. *Write an algorithm, Flow Chart and C language program to find the factorial of a positive integer. (Number read from keyboard)*
6. *Write an algorithm, Flow Chart and C language program to print area of geometrical shapes – triangle, rectangle, circle etc.*
7. *Write an algorithm, Flow Chart and C language program to print week day using switch case statement.*
8. *Write an algorithm, Flow Chart and C language program to design calculator using arithmetic operators using switch case statement.*
9. *Write an algorithm, Flow Chart and C language program to print all numbers in between 1 to 50 using all three C language loops (**while, DO While and For Loop**).*
10. *Write an algorithm, Flow Chart and C language program to print all alphabet from a to z using all three C language loops (**while, DO While and For Loop**).*
11. *Write an algorithm, Flow Chart and C language program to print all alphabet from z to a using all three C language loops (**while, DO While and For Loop**).*
12. *Write an algorithm, Flow Chart and C language program to print 100 times and infinite time using all three C language loops (**while, DO While and For Loop**).*

Happy Birth Day

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13. *Write an algorithm, Flow Chart and C language program to read no. from keyboard and detect given no. is prime, odd, even and composite no.*
14. *Write an algorithm, Flow Chart and C language program to convert any no. up to 9 digits into Roman No.*
15. *Write an algorithm, Flow Chart and C language program to insert commas suitable & write the names according to Indian and international system of numeration of any given no. by the keyboard.*

16. *Write an algorithm, Flow Chart and C language program to print table of any given no.*
17. *Write an algorithm, Flow Chart and C language program to evaluate the following equation –* $a^2 + b^2 - 2ab\ cos(x)$
18. *Write an algorithm, Flow Chart and C language program to evaluate the following equation –* $1 / (l*c) - r^2 / (4*c^2)$
19. *Write an algorithm, Flow Chart and C language program to evaluate the following equation –* $\pi r^2 + \pi r^2 h$
20. *Write an algorithm, Flow Chart and C language program to print 1 to 100 – increasing order and decreasing order 100 to 1 using three loops (**while, DO While and For Loop**).*
21. *Write an algorithm, Flow Chart and C language program to print a to z – increasing order and decreasing order z to a using three loops (**while, DO While and For Loop**).*
22. *Write an algorithm, Flow Chart and C language program to compute greater no. from given three no. Numbers read from keyboard.*
23. *Write an algorithm, Flow Chart and C language program to compute greater no. from given two no. Numbers read from keyboard.*
24. *Write an algorithm, Flow Chart and C language program to swap/exchange value of a & b.*
25. *Write an algorithm, Flow Chart and C language program to define conditional (? :) operator.*
26. *Write an algorithm, Flow Chart and C language program to computer arithmetical operations.*
27. *Write an algorithm, Flow Chart and C language program to calculate root1and root2 of given no.*
28. *Write an algorithm, Flow Chart and C language program to computer vowel and consonant from given character using nested if statement.*
29. *Write an algorithm, Flow Chart and C language program to compute factorials of any given no. (0!=1)*
30. *Write an algorithm, Flow Chart and C language program to calculate area of circle, triangle, Rectangle, square.*
31. *Write an algorithm, Flow Chart and C language program to show trigonometry table. (sin, cos, tan, sec, cosec, cot and angle are 0,30,45,60 and 90 degree).*

32. *Write an algorithm, Flow Chart and C language program to calculate power of no. (x^y)*
33. *Write an algorithm, Flow Chart and C language program to print and sum of Fibonacci series for a given value of n.*

    0,1,1,2,3,5,8,13,21, ……,n
34. *Write an algorithm, Flow Chart and C language program to show instance variable, class variable and local variable.*
35. *Write an algorithm, Flow Chart and C language program to convert the given temperature in Fahrenheit to Celsius and Kelvin and vice versa forgetting input from the user. And display the values in a tabular form.*

    C/5 = (F-32)/9 = K-273/5
36. *Write an algorithm, Flow Chart and C language program to explain relational operator with the help of example.*
37. *Write an algorithm, Flow Chart and C language program to explain logical operator with the help of example.*
38. *Write an algorithm, Flow Chart and C language program to explain switch statement with the help of example.*
39. *Write an algorithm, Flow Chart and C language program to explain break statement with the help of example using three loops (**while, DO While and For Loop**).*
40. *Write an algorithm, Flow Chart and C language program to explain continue statement with the help of example using three loops (**while, DO While and For Loop**).*
41. *Write an algorithm, Flow Chart and C language program to explain conditional operator with the help of example.*
42. *Write an algorithm, Flow Chart and C language program to determine the sum of the following harmonic series for a given value of n*

    1+1/2+1/3+…….+1/n
43. *Write an algorithm, Flow Chart and C language program to add first seven terms of the following series using for loop*

    1/1!+2/2!+3/3!+ ……..
44. *Write an algorithm, Flow Chart and C language program to test whether a number given is positive or not.*
45. *Write an algorithm, Flow Chart and C language program to obtain the age of a person and tell whether the person is eligible voter or not.*

46. *Write an algorithm, Flow Chart and C language program to obtain principal amount, and time and then calculator simple interest as per following specifications:*
47. *If principal is greater than or more then Rs.10000, then rate of interest is 6% otherwise it is 5%.*
48. *Write an algorithm, Flow Chart and C language program to obtain principal amount and time and calculate simple interest as per following rates of interest.*

Principal Amount	*rate of Interest*
<10000	*5%*
>=10000 - < 20000	*6.5%*
>=20000 - <50000	*8.5%*
>=50000	*10%*

49. *Write an algorithm, Flow Chart and C language program to print first natural number and their sum.*
50. *Write an algorithm, Flow Chart and C language program to print even number between 50 and 100 using three loops (**while, DO While and For Loop**).*
51. *Write an algorithm, Flow Chart and C language program to print the sum of following series using three loops (**while, DO While and For Loop**).*
    1+1/4+1/7+1/10+1/13+1/16+1/19+1/22+1/25+ .....+1/n
52. *Write an algorithm, Flow Chart and C language program to accept two numbers and print the numbers falling between the two given numbers.*
53. *Write an algorithm, Flow Chart and C language program to count the numbers entered and calculates their average. The loop should terminate when zero (0) is entered.*
54. *Write an algorithm, Flow Chart and C language program to print first n squares lesser than 50 using three loops (**while, DO While and For Loop**).*
55. *Write an algorithm, Flow Chart and C language program to find the number of and sum of all integers greater than 100 and less than 200 that are divisible by 7.*
56. *Write an algorithm, Flow Chart and C language program to count number of words given on command line argument.*

57. *Write an algorithm, Flow Chart and C language program to print following patterns using three loops (**while, DO While and For Loop**). Read no. of rows from key board.*

Program to print half pyramid using *

```
*
* *
* * *
* * * *
* * * * *
```

Program to print half pyramid a using numbers

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Program to print half pyramid using alphabets

```
A
B B
C C C
D D D D
E E E E E
```

Programs to print inverted half pyramid using * and numbers

Inverted half pyramid using *

```
* * * * *
* * * *
* * *
* *
*
```

Inverted half pyramid using numbers

```
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

Programs to display pyramid and inverted pyramid using * and digits

Program to print full pyramid using *

```
      *
     * * *
    * * * * *
   * * * * * * *
  * * * * * * * * *
```

Program to print pyramid using numbers

```
      1
     2 3 2
    3 4 5 4 3
   4 5 6 7 6 5 4
  5 6 7 8 9 8 7 6 5
```

Inverted full pyramid using *

```
* * * * * * * * *
 * * * * * * *
  * * * * *
   * * *
    *
```

Print Pascal's triangle

```
        1
       1  1
      1  2  1
     1  3  3  1
    1  4  6  4  1
  1  5  10  10  5  1
```

Print Floyd's Triangle.

```
1
2 3
4 5 6
7 8 9 10
```

58. *Write an algorithm, Flow Chart and C language program to reverse of number using three loops (**while, DO While and For Loop**)*
59. *Write an algorithm, Flow Chart and C language program to calculate sum of digits. Digits read from keyboard.*
60. *Write an algorithm, Flow Chart and C language program to count number of digits.*
61. *Write an algorithm, Flow Chart and C language program to find square root of any number*
62. *Write an algorithm, Flow Chart and C language program to calculate compound interest.*
63. *Write an algorithm, Flow Chart and C language program **to** calculate Salary, Basic, DA @125%, HRA@7%, CCA@2% and display the values in a tabular form.*
64. *A **palindrome number** is a number that is same after reverse. For example 545, 151, 34543, 343, 171, 48984 are the palindrome numbers. It can also be a string like LOL, MADAM etc.*
65. *An **Armstrong number** of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself. For example, 371 is an Armstrong number since 3**3 + 7**3 + 1**3 = 371.*
66. *Write an algorithm, Flow Chart and C language program to check if a number / String are palindrome or not?*
67. *Write an algorithm, Flow Chart and C language program to check if a number is a perfect number or not? A perfect number is one which is equal to the sum of its factors E.g., 6=1+2+3* ***Exempli gratia = उदाहरण के लिए***
68. *Write an algorithm, Flow Chart and C language program to check if a number is Armstrong number or not?*
69. *Write an algorithm, Flow Chart and C language program to store 10 integers in array and display them.*
70. *Write an algorithm, Flow Chart and C language program to find maximum number in an array.*
71. *Write an algorithm, Flow Chart and C language program to add two 2- D matrix.*
72. *Write an algorithm, Flow Chart and C language program to reverse a string.*
73. *Write an algorithm, Flow Chart and C language program to copy one string to another.*
74. *Write an algorithm, Flow Chart and C language program to find sum of two numbers using function.*

75. *Write an algorithm, Flow Chart and C language program to print prime no between 1 to 100 using functions*.
    Write an algorithm, Flow Chart and C language program to reading string using gets.
72. *Write an algorithm, Flow Chart and C language program to reading string using fgets.*
73. *Write an algorithm, Flow Chart and C language program to reading string using scanf.*
74. *Write an algorithm, Flow Chart and C language program to reading string using getche and getch.*
75. *What is C language?*
76. *Who developed C language?*
77. *Describe about history of C programming language.*
78. *Where is C programming language used or uses of C language?*
79. *C language has been developed in which language?*
80. *Which year C language is developed?*
81. *What is meant by programming language and give some examples?*
82. *Describe about C standards.*
83. *What are the key features of C language or what are the characteristics of C language?*
84. *What is embedded C?*
85. *Which level is C language belonging to?*
86. *What do you mean by high level, middle level and low level languages and give an example for each?*
87. *What is the difference between structured oriented, object oriented and non-structure oriented programming language?*
88. *What is compiler?*
89. *What is the difference between assembler, compiler and interpreter?*
90. *What is printf()?*
91. *What is scanf()?*
92. *Execution of a C program starts from which function?*
93. *What are all the sections that a C program may have and must have?*
94. *What is IDE?*
95. *List out some of C compilers.*
96. *What is header file in C language?*
97. *Is C language case sensitive?*
98. *What is Macro? Why do we use macro?*
99. *What is data type in C?*
100. *What is the difference between int, char, float and double data types?*
101. *What is the use of sizeof() function in C?*
102. *What is modifier in C?*

103. *What are different types of modifiers in C?*
104. *What is enum in C?*
105. *What is void in C?*
106. *What is token in C?*
107. *What are the types of C tokens?*
108. *What is identifier in C?*
109. *What is keyword in C?*
110. *List out some keywords available in C language.*
111. *What is constant in C?*
112. *What are the types of constants in C?*
113. *What is variable in C?*
114. *What is the difference between constant and variable in C?*
115. *Can variable name start with numbers?*
116. *What is the difference between variable declaration and variable definition in C?*
117. *What are the different types of variables in C?*
118. *What is local variable in C?*
119. *What is global variable in C?*
120. *What is environment variable in C?*
121. *What is operator in C?*
122. *What are the different types of operators in C?*
123. *What is the syntax for ternary operator in C?*
124. *What is arithmetic operator in C?*
125. *What is assignment operator in C?*
126. *What is the relational operator in C?*
127. *What is the logical operator in C?*
128. *What is the bitwise operator in C?*
129. *What are all decision control statements in C?*
130. *What are all loop control statements in C?*
131. *What is the difference between while and do-while loops in C?*
132. *What is the difference between single equal "=" and double equal "==" operators in C?*
133. *What is the difference between pre increment operator and post increment operator?*
134. *What is the difference between pre decrement operator and post decrement operator?*
135. *What is "&" and "*" operators in C?*
136. *What will happen if break statement is not used in switch case in C?*
137. *Why is default statement used in switch case in C?*
138. *What is the use of "goto" statement?*

139. *What value will be assigned to the variable X if a = 10, b = 20, c = 30, d = 40 for the expression X = a/b+c*d-c?*
140. *What is the value assigned to the following variables? int X1 = 13/3; int X2 = 13%3;*
141. *What is the difference between auto variable and register variable in C?*
142. *What is the difference between auto variable and static variable in C?*
143. *Where should type cast function not be used in C?*
144. *How many arguments can be passed to a function in C?*
145. *What is static function in C?*
146. *If you want to execute C program even after main function is terminated, which function can be used?*
147. *Is it possible to call atexit() function more than once in a C program?*
148. *What is exit() function in C?*
149. *What is the difference between exit() and return() in C?*
150. *What is the use of "#define" in C?*
151. *What is the syntax for comments in C?*
152. *What is "##" operator in C?*
153. *What is pragma in C? Or how will you execute functions before and after main function in C program?*
154. *How will you override an existing macro in C?*
155. *How to check whether macro is defined or not in a C program?*
156. *What is the difference between memcpy() and strcpy() functions in C?*
157. *What is the difference between memcpy() and memmove() functions in C?*
158. *Is there any inbuilt library function in C to remove leading and trailing spaces from a string? How will you remove them in C?*
159. *What is the difference between strcpy() and strncpy() functions in C?*
160. *Can array subscripts have negative value in C?*
161. *What is the difference between array and string in C?*
162. *What is pointer in C?*
163. *What is null pointer in C?*
164. *What is NULL in C?*
165. *What is void pointer in C?*
166. *What is dangling pointer in C?*
167. *What is wild pointer in C?*
168. *What is file pointer in C?*
169. *When can void pointer and null pointer be used in C?*
170. *What is const pointer in C?*

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