**Programming in C Lab (ES-153/154)**

**List of Practical’s**

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| **Basics Of C** |  |  |
| **Question 1** | **1.****2.** | **Write A Program To Add Two Numbers.****Description:****Both The Numbers Should Be Asked From User.****Both The Numbers And Sum Should Be In Floating Point.** |
| **Question 2** | **1.****2.** | **Write A Program To Calculate The Simple Interest****Description:****Ask For The Values Of Principle, Rate And Time From User.****If Value Of Principle, Rate Or Time Is Negative Or Zero An Appropriate Error Is To Be Displayed On The Screen And Program Should Terminate.**  |
| **Question 3** | **1.****2.** | **Write A Program To Calculate The Area And Perimeter Of A Rectangle.****Description:****Ask For The Values Of Length And Breadth From User.****If Value Of Length And Breadth Is Negative Or Zero An Appropriate Error Is To Be Displayed On The Screen And Program Should Terminate.** |
| **Question 4** | **1.****2.** | **Write A Program To Accept The Marks Of Five Subjects And Find The Total And Percentage.****Description:****Ask For The Values Of Five Subjects From User.****If Value Of Any Of Five Subjects Is Negative Or Zero Or 100 An Appropriate Error Is To Be Displayed On The Screen And Program Should Terminate.** |
| **Question 5** | **1.****2.** | **Write A Menu Driven Program To Convert Fahrenheit Temperature To Centigrade Or Centigrade To Fahrenheit Temperature.****Description:****Ask For The Values Of Fahrenheit Or Centigrade From User.** **Ask Value Of Choice From User, If Choice Is 1 Then Convert Fahrenheit Temperature To Centigrade Or If Choice Is 2 Then Convert Centigrade To Fahrenheit Temperature.** |
| **Question 6** |  | **Write A Program To Accept A Three Digit Number And Find The Sum Of Digits Of The Number Without Using Loop.**  |
| **Question 7** |  | **Write A Program To Accept A Three Digit Number And The Reverse Number Without Using Loop.** |
| **If condition** |  |  |
| **Question 8** | **1.** | **Write A Program To Accept A Number From User And Check If It Is Even Or Odd.****Description:****Generate Appropriate Error If The Number Entered Is Zero Or Negative.** |
| **Question 9** | **1.** | **Write A Program To Check If The Given Year Is A Leap Year.****Description:****Generate Appropriate Error If The Year Value Entered Is Zero Or Negative.** |
| **Question 10** |  | **Write A Program To Find It The Number Is Positive, Negative Or Zero.** |
| **Question 11** | **1****2.** | **Write A Program To Find The Largest Of Three Numbers Using Nested If.****Description:****Generate Appropriate Message If The Numbers Are Equal.****Should work for signed numbers also.**  |
| **Question 12** | **1** | **Write A Program To Accept The Marks Of Five Subjects And Find Grades Of The Students. Use Else If Ladder.****Description:****Generate Appropriate Message If The marks are greater than 100 or smaller than 0.** |
| **Question 13** |  | **Write A Program To Find The Larger Of Two Numbers Using Ternary Operator.** |
| **Conversions** | **1** | **Use nested ternary operator**  |
| **Question 14** |  | **Write A Program To Accept A Single Input Character And Check If It Is A Uppercase, Lowercase, Digit Or A Special Symbol.** |
| **Question 15** | **1.** | **Write A Program To Change The Case Of A Character Without Using The Standard Functions.****Description:****Generate Appropriate Message If The Character Entered Is Not An Alphabet.** |
| **Question 16** | **1.****2** | **Write A Program To Display Ascii Number Of The Alphabets And Digits.****Description:****Generate Appropriate Message If The Character Entered Is Not An Alphabet Or Digit.****Find a method to display appropriate message af ascii on keystroke does not exist.** |
| **Question 17** | **1** | **Write A Program To Convert A Decimal Number To A Binary Number To Octal Number.****Should work for unsigned numbers only** |
| **Loops** |  |  |
| **Question 18** | **1.** | **Write A Program To Find The Factorial Of A Given Number.****Description:****Generate Appropriate Error If The Number Entered Is Zero Or Negative And Repeatedly Ask User For Correct Value.****Function shoul call itself again and again till the factorial is calculated** |
| **Question 19** | **1.** | **Write A Program To Find The Power Of A Number.****Description:****Generate Appropriate Error If The Exponentiation Number Entered Is Zero Or Negative And Repeatedly Ask User For Correct Value.** |
| **Question 20** | **1.** | **Write A Program To Find All Prime Numbers Between 1 To N.****Description:****Generate Appropriate Error If Value Of N Entered Is Zero Or Negative And Repeatedly Ask User For Correct Value.** |
| **Question 21** | **1.** | **Write A Program To Print The Fibonacci Series Till The Term Number Entered From User.****Description:****Generate Appropriate Error If Value Of Term Number Entered Is Zero Or Negative And Repeatedly Ask User For Correct Value.** |
| **Question 22** | **1.** | **Write A Program To Find Sum Of Digits Of A Number Using Do-While.****Description:****The Number Entered Must Be Three Digit Number Or More, If It Is Not Then Display Error Message And Repeatedly Ask User For Correct Value.** |
| **Question 23** |  | **Write A Program To Find Sum And Average Of 10 Different Numbers Using While Loop.** |
| **Question 24** |  | **Write A Program To Print The Following Pattern**  |
|  |  | **A** |
|  |  | **A B** |
|  |  | **A B C** |
|  |  | **A B C D** |
|  |  | **A B C D E** |
| **Question 25** |  | **Write A Program To Print The Following Pattern Using Nested For.** |
|  |  | **5 4 3 2 1**  |
|  |  | **4 3 2 1**  |
|  |  | **3 2 1**  |
|  |  | **2 1** |
|  |  | **1** |
| **Question 26** |  | **Write A Program To Print The Following Pattern Using Nested For Loop.** |
|  |  | **987654321** |
|  |  | **11111111** |
|  |  | **9876543** |
|  |  | **333333** |
|  |  | **98765** |
|  |  | **5555** |
|  |  | **987** |
|  |  | **77** |
|  |  |  |
| **Question 27** |  | **Write A Program To Print The Following Pattern** |
|  |  | **A B C D E F E D C B A** |
|  |  | **A B C D E E D C B A** |
|  |  | **A B C D D C B A** |
|  |  | **A B C C B A** |
|  |  | **A B B A** |
|  |  | **A A** |
| **Question 28** | **1.****2.****3.** | **Write A Program To Generate Following Series:** **Sum=X + X/2! + X/4! + ………X/N!****Description:****Ask For Value Of X And N From User.****If Value Of X Is Zero Then Raise Error And Repeatedly Ask For Correct Value From User.****If Value Of N Is Zero Or Negative Then Raise Error And Repeatedly Ask For Correct Value From User.** |
| **Question 29** | **1.****2.****3.****4.** | **Write A Program To Perform A Calculator Using Switch Case.****Description:****Ask For Two Numbers And Choice.****Operations To Be Performed Are : +, - , \* , / , %****If Value Of Choice Is Invalid Then Repeatedly Ask For Valid Choice Value.****Check For Zero Value Of Denominator For Division And Remainder.**  |
| **Arrays****Question 30** |  | **Write A Program To Accept 10 Numbers In A Array And Find The Largest And Smallest Number.** |
| **Question 31** |  | **Write A Program To Sort An Array In Ascending Order Using Bubble Sort.** |
| **Question 32** | **1.****2.** | **Write A Program To Search An Element In An Array.****Description:****Ask For Size Of Array, Array And Item To Be Searched From User.****Display Position Of The Element If Element Is Found And Appropriate Message Is Element Is Not Found.** |
| **Question 33** |  | **Write A Program To Add Elements Of Two Square Matrices And Store The Result In The Third Matrix.** |
| **Question 34** |  | **Write A Program To Subtract Elements Of Two Square Matrices And Store The Result In The Third Matrix.** |
| **Question 35** |  | **Write A Program To Multiply Elements Of Two Square Matrices And Store The Result In The Third Matrix.** |
| **Question 36** | **1.****2.****3.****4.****5.** | **Write A Program To Display And Find Sum Of Both The Diagonals Of A Square Matrix.****Description:****Ask For The Number Of Rows And Columns Of Matrix From The User.****Ask For The Matrix From User.****Display The Complete Matrix.****Display The Diagonals Of The Matrix.****Display The Sum.** |
| **Question 37** | **1.****2.****3.****4.** | **Write A Program To Display Upper Triangular Section Of A Square Matrix.****Description:****Ask For The Number Of Rows And Columns Of Matrix From The User.****Ask For The Matrix From User.****Display The Complete Matrix.****Display The Upper Triangular Portion Of The Matrix.** |
| **Functions****Question 38** | **1.****2.** | **Write A Program To Calculate Cube Of Numbers 1 To 10 Using Functions.****Description:****Function Should Receive Number As Argument.****Function Should Return The Cube Of Number, The Cube Should Be Displayed In Void Main.** |
| **Question 39** | **1.****2.** | **Write A Program To Find Factorial Of Number Using Functions.****Description:****Function Should Receive Number As Argument.****Function Should Return The Factorial Of Number, The Factorial Should Be Displayed In Void Main.** |
| **Question 40** | **1.****2.** | **Write A Program To Calculate Area Of Circle Using Functions.****Description:****Function Should Receive Radius As Argument.****Function Should Return The Area, The Area Should Be Displayed In Void Main.** |
| **Recursion** |  |  |
| **Question 41** |  | **Write A Program To Find The Factorial Of A Number Using Recursion.** |
| **Question 42** |  | **Write A Program To Find The Fibonacci Series Using Recursion.** |
| **Question 43** |  | **Write A Program To Find The Sum Of Digits Of A Number Using Recursion.** |
| **Pointers****Question 44** |  | **Write A Program To Swap Two Numbers Using Pointers And Functions.** |
| **Question 45** |  | **Write A Program To Add Two Matrices Using Pointers.** |
| **Strings****Question 46** |  | **Write A Program To Check Whether A String Is Palindrome Or Not.** |
| **Question 47** |  | **Write A Program To Count The Number Of Vowels In A String.** |
| **Question 48** | **1.****2.****3.** | **Write A Program To Design The Following Functions:****GTBIT\_Strlen Function: This Function Will Return The Length Of The String Passed As An Argument.****GTBIT\_Strcpy Function: This Function Make Copy Of The String Passed As An Argument.****GTBIT\_Strcat Function: This Function Will Concatenate The Two Strings Passed As An Argument.** |
| **Structures** |  |  |
| **Question 49** |  | **Write A Program To Ask And Display Details Of 10 Students Using Structure.** |
| **Question 50** | **1.** | **Write A Program To Copy A Structure Object Into Another Object Using Structures And Functions.****Description:****Function Should Receive Both Objects As Argument.** |
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