C Programming Question Paper

GROUP: A

1. Write a C program that includes a user-defined function named isPrime with the signature ***int isPrime(int num);*** The function should take an integer as a parameter and return 1 if the number is prime and 0 otherwise.

2. Write a C program that includes a user-defined function named isArmstrong with the signature ***int isArmstrong(int num);***. An Armstrong number is a number that is equal to the sum of its own digits each raised to the power of the number of digits. For example, 153 is an Armstrong number because 1^3 + 5^3 + 3^3 = 153

3. Write a C program that includes a user-defined function named isPerfect with the signature ***int isPerfect(int num);.*** A perfect number is a positive integer that is equal to the sum of its proper divisors, excluding itself. For example, 28 is a perfect number because the sum of its divisors (1, 2, 4, 7, 14) equals 28.

4. Write a C program that takes an integer input representing a month (1 to 12) and a year. Use a switch statement to display the number of days in that month, considering leap years.

GROUP: B

5. Write a C program that defines an array of integers, and includes a user-defined function named reverseArray with the signature ***void reverseArray(int arr[], int size);.*** The function should reverse the elements of the array.

6. Write a C program that includes a user-defined function named findLargest with the signature ***int findLargest(int arr[], int size);***. The function should take an array of integers and its size, and return the largest element in the array.

7. Write a C program that includes a user-defined function named binarySearch with the signature ***int binarySearch(int arr[], int size, int target);.*** The function should perform a binary search on a sorted array of integers and return the index of the target element if found, and -1 otherwise.

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GROUP: C

8. Write a C program that includes a user-defined function named countSetBits with the signature ***int countSetBits(int num);*.** The function should count and return the number of set bits (1s) in the binary representation of the given number.
9. Write a C program that includes a user-defined function named setBit with the signature ***int setBit(int num, int position);*.** The function should set the bit at the specified position (0-indexed) to 1 and return the modified number.

GROUP: D

10. Write a C program that defines a structure Rectangle with attributes length and width. Include a user-defined function named calculateArea with the signature ***float calculateArea(struct Rectangle r);***. The function should calculate and return the area of the rectangle.

11. Write a C program that defines a structure Student containing the attributes rollNumber, name, and marks. Include a user-defined function named displayStudent with the signature ***void displayStudent(struct Student s);***. The function should display the details of a student.

GROUP: E

12. Write a C program that takes multiple integers as command-line arguments and finds the maximum and minimum value among them.

13. Write a C program that accepts a string as a command line argument and includes a user-defined function named isPalindrome with the signature ***int isPalindrome(char str[]);*.** The function should check if the given string is a palindrome and return 1 if it is, and 0 otherwise.

GROUP: F

14. Write a C program that opens its own source code file, reads its contents, and then prints the contents to the console.
15. Write a C program that reads a sequence of integers from a file named 'input.txt'. This program should segregate the odd numbers from the even numbers and store the odd numbers in a new file named 'ODDFile.txt' while storing the even numbers in another file named 'EVENFile.txt

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