

Scheme – I

Sample Question Paper

Program Name : Diploma in Electronics Engineering Program Group

Program Code : EJ/DE/ET/EN/EX

Semester : Second

Course Title : 'C' Programming Language

Max. Marks : 70

22218

Time: 3 Hrs.

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order

Q.1) Attempt any FIVE of the following.

10 Marks

- A) Define the term (i) identifier (ii) token.
- B) State the use of break and continue statement.
- C) State two differences between while loop and do while loop.
- D) State the advantage of function.
- E) Define pointers in C.
- F) State any four features of pointer.
- G) Define structure.

Q.2) Attempt any THREE of the following.

12 Marks

- A) Distinguish between variable and constant.
- B) Describe use of for loop with syntax and flowchart.
- C) Define array. How array is declared write its syntax?
- D) Explain recursion with example.

Q.3) Attempt any THREE of the following.

12 Marks

- A) Enlist any four types of arithmetic operators used in C and give one example of each.
- B) Explain declaration and initialization of one-dimensional array with example.
- C) Explain meaning of following statement with reference to pointers. `int * a, b;`
`b = 20;`
`*a = b;`
`a = &b;`
- D) Explain how structure can be initialized with suitable example.

Q.4) Attempt any THREE of the following.

12 Marks

- A) Write a program in 'C' to display hexadecimal, decimal, octal format of the entered number.
- B) Write a C program to convert a temperature of 60° C to the Fahrenheit scale using the relationship $F = (9/5) * C + 32$
- C) Explain any four string handling functions from standard library function..
- D) Write a 'c' program to add two numbers using pointers

Q.5) Attempt any TWO of the following.

12 Marks

- A) Explain how 'switch' statement is used in the programs instead of 'if-else' statements with a suitable example program.
- B) Write a C program to count the number of characters and print the vowels present in entered text.
- C) Write a C program to swap contents of two variables using call by reference.

Q.6) Attempt any TWO of the following.

12 Marks

- A) Write a C program to search a particular roll no. in an array. If that roll no. exist in an array print "number is present" else print "number is absent".
- B) Write a C program to find factorial of given number using recursion function.
- C) Write a program to declare structure book having data member as book_name, book_id, book_price. Accept this data for 3 books and display it.

Scheme – I
Sample Test Paper - I

Program Name : Diploma in Electronics Engineering Program Group
Program Code : EJ/DE/ET/EN/EX
Semester : Second
Course Title : 'C' Programming Language
Max. Marks : 20

22218

Time: 1 Hour

Instructions: All questions are compulsory

1. Illustrate your answers with neat sketches wherever necessary
2. Figures to the right indicate full marks
3. Assume suitable data if necessary
4. Preferably, write the answers in sequential order

Q1. Attempt any Four

(2*4=08)

1. Define token and identifier.
2. Explain use of for loop with syntax and flow chart.
3. List any two library functions with syntax.
4. Write the syntax of else if-ladder.
5. Write syntax of switch case.
6. Write a program to find the sum of digit of an integer

(Sum = 1 + 4 + 5 + 3 + 2 = 15)

Q2. Attempt any Three

(3*4=12)

1. Write a program to demonstrate the use of printf and scanf statement to read and print values of variables of different data types.
2. Write a program to determine whether a person is eligible to vote.
3. Write a program that displays the size of every data type.
4. Write use of comma operator in 'for' loop.
5. Identify situation will you prefer to use while, do-while loop.
6. Write algorithm and draw flowchart to print prime numbers between 1 to 100.
7. Write a program to print following pattern.

1 1 1
2 2
3

Scheme - I
Sample Test Paper - II

Program Name : Diploma in Electronics Engineering Program Group
Program Code : EJ/DE/ET/EN/EX
Semester : Second
Course Title : 'C' Programming Language
Max. Marks : 20

22218

Time: 1 Hour

Instructions: All questions are compulsory

1. Illustrate your answers with neat sketches wherever necessary
2. Figures to the right indicate full marks
3. Assume suitable data if necessary
4. Preferably, write the answers in sequential order

Q1. Attempt any Four

(2*4=08)

1. Clarify the situation: when a function returns a value that does not match with the return type of function?
2. State any four advantages of function.
3. State the difference between one dimensional and two dimensional arrays.
4. Write advantages of pointer.
5. Write the syntax for structure.
6. Give an example of enumerated data type with syntax.

Q2. Attempt any Three

(3*4=12)

1. Write types of parameter passing methods in function and give one example of each.
 2. Write a program to convert the given string "Hello" to "olleH" using recursion
 3. Write a program to read, display the information about employees using structure.
 4. Differentiate between * (arr+i) and (arr+i).
 5. Write C Program for following string function.
 - strev()
 - strlen()
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Scheme - I
Sample Question Paper

Program Name : Computer Engineering Program Group
Program Code : CO/CM/IF/CW/IF
Semester : Second
Course Title : Programming in 'C'
Marks : 70

22226

Time: 3 Hrs.

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following.

10 Marks

1. Draw and label different symbols used in flow charts.
2. Give significance of math.h and string.h header files.
3. Differentiate between while and do-while loop.
4. Define enumerated data types with example.
5. List any four library functions with syntax.
6. Explain pointer declaration with example
7. Give the structure of 'C' program.

Q.2) Attempt any THREE of the following

12 Marks

1. Write an algorithm to evaluate following expression
 $ax^2+bx+c=0$
2. Illustrate with example the use of 'break' and 'continue' statements in C.
3. Write the structure declaration in C with suitable example.
4. Write the output of following code:

```
main()
{
    int radius ;
    float area, perimeter ;
    printf ( "\nEnter radius of a circle " );
    scanf ( "%d", &radius );
    areaperi ( radius, &area, &perimeter ) ;
    printf ( "Area = %f", area ) ;
    printf ( "\nPerimeter = %f", perimeter ) ;
}
areaperi ( int r, float *a, float *p )
{
```

```
*a = 3.14 * r * r ;  
*p = 2 * 3.14 * r ;  
}
```

Q.3) Attempt any THREE of the following. 12 Marks

1. Explain typecast operators with example.
2. Describe the two ways of passing parameters to functions.
3. Classify all operators in C with its hierarchy.
4. Describe the two ways of passing parameters to functions.

Q.4) Attempt any THREE of the following. 12 Marks

1. Write algorithm and draw flowchart to print prime numbers between 1 to 100.
2. Suresh's basic salary is input through the keyboard. His dearness allowance is 40% of basic salary, and house rent allowance is 20% of basic salary. Write a program to calculate his gross salary.
3. If cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or loss. Also determine how much profit he made or loss he incurred.
4. Write a program for multiplication of two 3x3 matrices.
5. If the string "Alice in wonder land" is fed to the following scanf() statement, what will be the contents of the arrays str1, str2, str3 and str4?
scanf ("%s%s%s%s%s", str1, str2, str3, str4) ;

Q.5) Attempt any TWO of the following. 12 Marks

1. Write a program to print the month of year using switch cases.
2. Write a program for multiplication of two 3x3 matrices.
3. Develop a Program to find sum of all elements stored in given array using pointers.

Q.6) Attempt any TWO of the following. 12 Marks

1. Write a program using structure to read and display information of students.
2. Write the program to swap values of two variables using call by reference.
3. Write a program to display the sum and average of numbers from 100 to 200 using pointers.

Scheme - I
Sample Test Paper - I

Program Name : Computer Engineering Program Group
Program Code : CO/CM/IF/CW/IF
Semester : Second
Course Title : Programming in 'C'
Marks : 20

22226

Time: 1 Hour

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any Four of the following

08 Marks

- a. Define algorithm? Explain with examples.
- b. List different tokens available in C.
- c. Differentiate between while and do-while loop.
- d. Draw flow chart to determine whether a given number is even or odd
- e. Give importance of switch statement
- f. Give Bitwise operators with examples.

Q.2 Attempt any THREE of the following

12 Marks

- a. Develop an algorithm to find the greatest of three numbers.
- b. Two numbers are input through the keyboard into two locations C and D. Write a program to interchange the contents of C and D.
- c. Write a program to find sum of digits of a given number.
- d. Write a program to print sum of all odd numbers from 1 to 50.

Scheme - I
Sample Test Paper - II

Program Name : Computer Engineering Program Group
Program Code : CO/CM/IF/CW/IF
Semester : Second
Course Title : Programming in 'C'
Marks : 20

22226

Time: 1 Hour

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any Four of the following

08 Marks

- a. State the use of array with example.
- b. List any four library functions with syntax.
- c. Give advantages of pointers
- d. Give the operations permissible on pointers.
- e. Differentiate between function declaration and function definition.
- f. What is the error in the following program

```
Type def struct product
{
    char name [10];
    float price ;
} PRODUCT products [10];
```

Q.2 Attempt any THREE of the following

12 Marks

- a. Write a program to sort following 10 numbers.
32, 14,20,45,2,66,47,23,30,94
- b. Write a program to read an integer number .Print the reverse of this number using recursion.
- c. Write a program to print the lowercase characters into uppercase and vice versa in the given string “gOOd mORning”.
- d. Write a program to implement linear search

22218

11920

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.

Marks

- 1. Attempt any FIVE of the following :** **10**
 - (a) State any four relational operators in 'C'.
 - (b) Give the syntax for switch case statement.
 - (c) State the use of continue statement.
 - (d) Define the term function.
 - (e) State any two advantages of pointer.
 - (f) State the use of '&' and '*' operators used with pointer.
 - (g) Write any two features of structure.

- 2. Attempt any THREE of the following :** **12**
 - (a) Describe scanf() with its syntax and example.
 - (b) With suitable example, describe importance of break statement used with switch statement.
 - (c) State any two advantages and any two limitations of an array.
 - (d) Differentiate between call by value and call by reference methods for passing parameter. (any four points)

- 3. Attempt any THREE of the following : 12**
- (a) Describe with suitable example difference between preincrement and postincrement operator.
 - (b) Describe declaration and initialization of two dimensional array.
 - (c) Describe pointer arithmetic with any two operations.
 - (d) With example describe enumerated data type.
- 4. Attempt any THREE of the following : 12**
- (a) Write an algorithm and draw flowchart to find whether entered number is even or odd.
 - (b) Write a program in 'C' to print the table for entered number.
 - (c) Describe following functions with their syntax and example.
 - (i) strcat()
 - (ii) strcmp()
 - (d) Write a 'C' program to calculate sum of elements of given array using pointer.
 - (e) Write a 'C' program to create a structure with members as day, month and year. Assign initial values to that structure and display it.
- 5. Attempt any TWO of the following : 12**
- (a) Describe use of nested if-else statement with syntax and example.
 - (b) Write a 'C' program to find largest number from an array of 10 numbers.
 - (c) Write a 'C' program to display fibonacci series using recursion.
- 6. Attempt any TWO of the following : 12**
- (a) Write a 'C' program to accept two strings from user. Display length of both the strings. Also concatenate two strings and display the output.
 - (b) Write a 'C' program to accept two numbers. Write a function add() to display addition of entered number. Write a function multiply() to display multiplication of entered number.
 - (c) Write a 'C' program to declare structure 'employee' having data members as empid, empname. Accept this data for 5 employees and display it.
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21819

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (6) Preferably, write the answers in sequential order.

- | | Marks |
|--|--------------|
| 1. Attempt any FIVE of the following : | 10 |
| (a) List any four relational operators with their use. | |
| (b) Give syntax of switch-case statement. | |
| (c) Give syntax of for loop. | |
| (d) State any two differences between call by value and call by reference. | |
| (e) Define pointer and state any two uses of pointer. | |
| (f) State the use of ★, *, & symbols used in pointers. | |
| (g) Define structure. | |
| 2. Attempt any THREE : | 12 |
| (a) Explain any four datatypes used in C with example. | |
| (b) Explain nested if-else statement with syntax and example. | |
| (c) Explain Array. State two advantages of array. | |
| (d) List any 2 string functions. Give syntax and use of each function. | |
| 3. Attempt any THREE of the following : | 12 |
| (a) Enlist any four bitwise operators used in C and give example of each. | |
| (b) Explain Pointer Arithmetic. | |
| (c) Explain meaning of following statement with reference to pointer : | |
| int var = 50; | |
| int *p1, *p2; | |
| P1 = & var; | |
| P2 = p1; | |
| (d) Explain declaration of structure with example. | |

4. Attempt any THREE of the following : 12

- (a) Write a C program to accept two integer numbers from user and print the result of addition and subtraction.
- (b) Write a C program to check whether given number is positive or negative and display message accordingly.
- (c) What is an output of following C code :

```
# include <stdio.h>
void main( )
{
    int a[5] = {10, 20, 30, 40, 50};
    printf("output");
    for (i = 0; i<3; i++)
    {
        Printf("%d", a[i];
    }
}
```

- (d) Declare a structure book having elements as book_number, book_title, book_price and also declare array of structure taking input of 10 books using C programming language.

5. Attempt any TWO of the following : 12

- (a) Explain if-else statement using syntax and example.
- (b) Write a C program to read string from keyboard and find whether it is palindrome or not.
- (c) Write a program to find length of a string.

6. Attempt any TWO of the following : 12

- (a) Write a program to add two 3×3 matrices.
 - (b) Write a program to add two numbers using function.
 - (c) Write a C program to create structure for student having data members like roll_no. name and marks in 3 subjects and display % of marks as output of program.
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22218

11819

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All questions are **compulsory**.
 - (2) Illustrate your answers with neat sketches **wherever** necessary.
 - (3) Figures to the **right** indicate **full** marks.
 - (4) Assume suitable data, if **necessary**.
 - (5) Preferably, write the answers in **sequential** order.

- | | Marks |
|--|-----------------|
| 1. Solve any five : | (5×2=10) |
| A) List 4 datatypes used in C. | 2 |
| B) State use of * and & used in pointers. | 2 |
| C) Give syntax of switch case statement. | 2 |
| D) State any four control statements. | 2 |
| E) Define Array. | 2 |
| F) List 2 mathematical functions used in C programming. | 2 |
| G) Define structure. | 2 |
| 2. Solve any three : | (3×4=12) |
| A) Distinguish between compiler and interpreter. | 4 |
| B) Explain while loop with syntax and example. | 4 |
| C) Explain the use of the following function with syntax : | |
| i) Strcmp() | 4 |
| ii) Strlen() | 4 |
| D) Write a program to calculate n th power of a number using function. | 4 |
| 3. Solve any three : | (3×4=12) |
| A) Write a program to accept ten numbers in array and arrange them in ascending order. | 4 |
| B) Explain use of arrow (→) operator with example. | 4 |

P.T.O.

**Marks**

- C) Write an algorithm and flowchart to swap the contents of two variables. 4
- D) Write a program to find whether the character entered through keyboard is a vowel or not. 4
- 4. Solve any three :** (3×4=12)
- A) Explain how to initialize two dimensional array with example. 4
- B) Explain recursive function with suitable example. 4
- C) State and explain four arithmetic operations perform on pointer. 4
- D) Explain conditional operator with example. 4
- 5. Solve any two :** (2×6=12)
- A) Write a program to add two 3×3 matrices. 6
- B) Write a program to add two numbers using function. 6
- C) Write a program to exchange values of two variables using pointers. 6
- 6. Solve any two :** (2×6=12)
- A) Write a program to declare a structure student having data members roll_no, name and agg_marks. Accept data and display this information for one student. 6
- B) Write a program to print table of a given number. 6
- C) Write a program to concatenate two strings. 6
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22218

21718

3 Hours / 70 Marks

Seat No.

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- Instructions :*
- (1) All questions are **compulsory**.
 - (2) Answer **each** next main question on a **new** page.
 - (3) Illustrate your answers with **neat** sketches **wherever** necessary.
 - (4) Figures to the **right** indicate **full** marks.
 - (5) Assume suitable data, if **necessary**.

Marks

1. Attempt **any five** of the following : **10**
 - A) State different data types supported by 'C' language.
 - B) State use of continue statement.
 - C) Give syntax of switch case statement.
 - D) Give syntax of declaring user defined function. Give one example.
 - E) Give the meaning of declaration `int *ptr`.
 - F) Explain initialization of pointer with example.
 - G) Give syntax of declaring and initialization of structure.

2. Attempt **any three** of the following : **12**
 - A) State the use of `%d` and `%f` and write the `printf` statement of 'C' using above mentioned symbols.
 - B) Compare while and do-while loop.
 - C) State the ways of declaration and initialization of string variables.
 - D) Explain recursion functions with example and state its advantages.

3. Attempt **any three** of the following : **12**
 - A) Explain the use of increment and decrement operators. Also give difference between `i++` and `++i` statements with example.
 - B) Declare and initialize the one dimensional integer array with 10 elements.
 - C) Explain the concept of pointer's arithmetic operation with example.
 - D) Explain array of structure with example.

P.T.O.



4. Attempt **any three** of the following : 12
- A) Write a 'C' program to enter basic salary. Calculate gross salary with 5% DA and 15% TA on basic salary. Display calculated gross salary.
 - B) Write a 'C' program to find whether the given number is prime or non prime.
 - C) Define array and explain how elements of array can be accessed.
 - D) Write a 'C' program using pointer to swap the value of two integer numbers.
 - E) Write a 'C' program to declare a structure 'student' with members as Roll no., name and marks. Accept and display data for one instance.
5. Attempt **any two** of the following : 12
- A) Explain else-if ladder with syntax and its execution with example. Also draw flow chart for else-if ladder.
 - B) Write the program to accept 10 (ten) numbers from user using array, search and print the location of a given number.
 - C) Write a 'C' program to print factorial of number n
(i.e. $n! = n \times (n - 1) \times (n - 2) \times \dots$) using recursion function.
6. Attempt **any two** of the following : 12
- A) Write a 'C' program to copy one string into another without using strcpy function.
 - B) Write a 'C' program to find sum of natural number entered by user.
 - C) Declare a structure circle containing data members as radius, area, perimeter. Accept radius for one variable from user and find out perimeter and area.
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22226

21819

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.

1. Attempt any FIVE of the following :

Marks

10

- (a) Draw flowchart for checking whether given number is even or odd.
- (b) List any four keywords used in 'C' with their use.
- (c) Write the syntax of switch case statement.
- (d) State any two differences between while and do-while statement.
- (e) State difference between array and string.
- (f) Declare a structure student with element roll-no and name.
- (g) Distinguish between call by value and call by reference.

2. Attempt any THREE of the following :

12

- (a) State four arithmetic operations perform on pointer with example.
- (b) Draw flowchart for checking weather given number is prime or not.
- (c) Write a program to reverse the number 1234 (i.e. 4321) using function.
- (d) Differentiate between character array and integer array with respect to size and initialisation.

- 3. Attempt any THREE of the following : 12**
- (a) Write a program to sum all the odd numbers between 1 to 20.
 - (b) Explain any four bit-wise operator used in 'C' with example.
 - (c) With suitable example, explain how two dimensional arrays can be created.
 - (d) Explain any two string functions with example.
- 4. Attempt any THREE of the following : 12**
- (a) Draw flowchart for finding largest number among three numbers.
 - (b) Describe generic structure of 'C' program.
 - (c) Write a program to take input as a number and reverse it by while loop.
 - (d) Write a program to accept 10 numbers in array and arrange them in ascending order.
 - (e) Explain meaning of following statement with reference to pointers :
int *a, b;
b = 20;
*a = b;
A = &b;
- 5. Attempt any TWO of the following : 12**
- (a) Write a program to perform addition, subtraction, multiplication and division of two integer number using function.
 - (b) Define Array. Write a program to accept ten numbers in array. Sort array element and display.
 - (c) Write a program to print reverse of a entered string using pointer.
- 6. Attempt any TWO of the following : 12**
- (a) Explain recursion with suitable example. List any two advantages.
 - (b) Write a program to accept ten numbers and print average of it.
 - (c) Enlist different format specifiers with its use.
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22226

11920

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following :**

10

- (a) Define array. List its type.
- (b) Draw & label different symbols used in flowcharts.
- (c) Find the output of the following program :

```
# include < stdio.h>
void main( )
{
    int x = 10, y = 10, v1, v2 ;
    v1 = x++ ;
    v2 = ++y ;
    printf ("value of v1:%d", v1) ;
    printf ("value of v2:%d", v2) ;
}
```
- (d) State the syntax & use of `strlen ()` & `strcat ()` function.
- (e) State the Relational operators with example.
- (f) State the syntax to declare pointer variable with example.
- (g) Draw flow chart for addition of two numbers.

[1 of 2]

P.T.O.

- 2. Attempt any THREE of the following :** **12**
- (a) State the importance of flow chart.
 - (b) Write a program to declare structure student having rollno, name & marks. Accept & display data for 3 students.
 - (c) Explain pointer arithmetic with example.
 - (d) Explain nested if-else with example.
- 3. Attempt any THREE of the following :** **12**
- (a) Describe the following terms :
 - (i) Keyword
 - (ii) Identifier
 - (iii) Variable
 - (iv) Constant
 - (b) Differentiate between call by value and call by reference.
 - (c) Explain conditional operator with example.
 - (d) List the categories of functions and explain any one with example.
- 4. Attempt any THREE of the following :** **12**
- (a) Write an algorithm to determine the given number is odd or even.
 - (b) Illustrate the use of break and continue statement with example.
 - (c) Write a program to add, subtract, multiply and divide two numbers, accepted from user using switch case.
 - (d) Illustrate initialization of two dimensional array with example.
 - (e) Write a program to read two strings and find whether they are equal or not.
- 5. Attempt any TWO of the following :** **12**
- (a) Write a program to calculate sum of all the odd numbers between 1 to 20.
 - (b) Write a program for addition of two 3×3 matrices.
 - (c) Write a program to compute the sum of all elements stored in an array using pointers.
- 6. Attempt any TWO of the following :** **12**
- (a) Write a program to sort elements of an array in ascending order.
 - (b) Write a function to print Fibonacci series starting from 0, 1.
 - (c) Calculate factorial of a number using recursion.
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22226

11819

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (6) Preferably, write the answers in sequential order.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define Algorithm.
- (b) Give the significance of `<math.h>` and `<stdio.h>` header files.
- (c) Give syntax of if-else ladder.
- (d) Define Array.
- (e) Write syntax and use of `pow()` function of `<math.h>` header file.
- (f) Define pointer. Write syntax for pointer declaration.
- (g) Draw and label symbols used in flow chart.

2. Attempt any THREE of the following :**12**

- (a) Write an algorithm to determine whether a given number is divisible by 5 or not.
- (b) Explain do – while loop with example.
- (c) Explain one dimension and two dimension arrays.
- (d) Write the output of following c program

```
#include<stdio.h>

int main ( )
{
    char *ptr;

    char str[]="MAHARASHTRA STATE BOARD OF TECHNICAL
    EDUCATION";

    ptr=str;

    ptr=ptr+11;

    printf("%s",++ptr);

    return 0;
}
```

3. Attempt any THREE of the following :**12**

- (a) Explain increment and decrement operator.
- (b) Explain User defined function with example.
- (c) Explain conditional operator with example.
- (d) Explain strlen() and strcpy() function with example.

- 4. Attempt any THREE of the following :** **12**
- (a) Write algorithm and draw flow-chart to print even numbers from 1 to 100.
 - (b) Write a program to accept marks of four subjects as input from user. Calculate and display total and percentage marks of student.
 - (c) Write a program to accept the value of year as input from the keyboard & print whether it is a leap year or not.
 - (d) Write a program to accept a string as input from user and determine its length. [Don't use built in library function strlen()]
 - (e) Write a program to swap two numbers using call by value.
- 5. Attempt any TWO of the following :** **12**
- (a) Write a program using switch statement to check whether entered character is VOWEL or CONSONANT.
 - (b) Write a program for addition of two 3×3 matrices.
 - (c) Write a program to Print values of variables and their addresses.
- 6. Attempt any TWO of the following :** **12**
- (a) Write a program to declare structure employee having data member name, age, street and city. Accept data for two employees and display it.
 - (b) If the value of a number (N) is entered through keyboard. Write a program using recursion to calculate and display factorial of number (N).
 - (c) Write a program to accept two numbers from user and perform addition, subtraction, multiplication and division operations using pointer.
-

22226

21718

3 Hours / 70 Marks

Seat No.

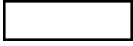



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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (7) Preferably, write the answers in sequential order.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define :
 - (i) Two dimensional array
 - (ii) Multi-dimensional array
- (b) Give any four advantages of pointer.
- (c) Define type casting. Give any one example.
- (d) State any four decision making statements.
- (e) State any four math functions with its use.
- (f) State the use of following symbols used for flowchart drawing :
 - (i) 
 - (ii) 
 - (iii) 
 - (iv) 
- (g) State use of while loop with syntax.

[1 of 4]

P.T.O.

2. Attempt any THREE of the following :**12**

- (a) Develop a simple 'C' program for addition and multiplication of two integer numbers.
- (b) Explain how to pass pointer to function with example.
- (c) Explain following functions :

`getchar()`

`putchar()`

`getch()`

`putch()`

with suitable examples.

- (d) Develop a program to accept an integer number and print whether it is palindrome or not.

3. Attempt any THREE of the following :**12**

- (a) State the use of `printf()` & `scanf()` with suitable example.
- (b) Explain any four library functions under `conio.h` header file.
- (c) Explain how formatted input can be obtain, give suitable example.
- (d) Develop a program to find factorial of a number using recursion.

- 4. Attempt any THREE of the following :** **12**
- (a) Write a program to swap the values of variables $a = 10$, $b = 5$ using function.
 - (b) Develop a program using structure to print data of three students having data members name, class, percentage.
 - (c) Design a program to print a message 10 times.
 - (d) Draw a flowchart for checking whether given number is prime or not.
 - (e) Implement a program to demonstrate logical AND operator.
- 5. Attempt any TWO of the following :** **12**
- (a) Draw a flowchart of Do-while loop and write a program to add numbers until user enters zero.
 - (b) Give a method to create, declare and initialize structure also develop a program to demonstrate nested structure.
 - (c) Implement a program to demonstrate concept of pointers to function.
- 6. Attempt any TWO of the following :** **12**
- (a) Develop a program to swap two numbers using pointer and add swapped numbers also print their addition.
 - (b) Design a programme in C to read the n numbers of values in an array and display it in reverse order.
 - (c) Develop a program to find diameter, circumference and area of circle using function.
-

22226

12223

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answers with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: **10****
- a) Define the terms :
- i) Flow chart
- ii) Algorithm
- b) State any four data types used in 'C'.
- c) List logical operators in 'C'.
- d) Define structure. Give one example of structure declaration.
- e) State any two advantages of function.
- f) Write the meaning of '&' and * with respect to pointer.
- g) Draw any two symbols used to construct flow chart. Also state their use.

P.T.O.

2. Attempt any THREE of the following:**12**

- a) Explain any four guidelines for preparation of flowchart.
- b) Differentiate between while loop and do while loop.
- c) Explain declaration and initialization of one dimensional array using example.
- d) Write output for following programming code:

```
#include<stdio.h>
#include<conio.h>
void main ( )
{
int x, y, a, b, *P1, *P2 ;
x = 10 ;
y = 20 ;
P1 = &x ;
P2 = &y ;
a = *P1 * *P2+20 ;
b = *P1 * *P2-20 ;
print f("x=%d, y=%d", x,y) ;
print f("a=%d, b=%d", a,b) ;
}
```

3. Attempt any THREE of the following:**12**

- a) Explain data type conversion with example.
- b) Explain any two string handling functions with syntax and example.
- c) Describe scanf() function with its syntax and example.
- d) Describe how recursive function is used in calculating factorial of a number.

- 4. Attempt any THREE of the following:** **12**
- a) Write an algorithm and draw a flowchart to find largest number from three numbers.
 - b) Write a program to convert temperature in Fahrenheit degrees to Centigrade degrees.
 - c) Write a C program to print following pattern using loop
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
 - d) Write a program to declare an array of 5 elements and display sum of all array elements.
 - e) Write a C program using function to find area of circle.
- 5. Attempt any TWO of the following:** **12**
- a) Write a C program with comments to reverse the digit of integer number. For example the number 12345 should be displayed as 54321.
 - b) Write a program to add two 3×3 matrices. Display the addition.
 - c) Write a program to find largest number from an array using pointer.
- 6. Attempt any TWO of the following:** **12**
- a) Write a C program to declare structure employee having data member name, age, designation and salary. Accept and display information of 1 employee.
 - b) Write a program to find factorial of a number using recursion.
 - c) Write a C program using pointer to read an array of characters and print them in reverse order.
-

22226

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**
- a) Draw and label different symbols used in flowchart.
- b) List any four keywords used in 'C'
- c) State any four decision making statements.
- d) Define array. List its types.
- e) Write syntax and use of PQW () function or `<math.h>` header file.
- f) State the syntax to declare a pointer variable with example.
- g) Draw flowchart for addition of two numbers.

P.T.O.

2. Attempt any THREE of the following: 12

- a) Write an algorithm to find largest of three numbers.
- b) Explain do while loop with example.
- c) Differentiate between character array and integer array with respect to size and initialisation.
- d) Explain meaning of following statements with reference to pointers

```
int *a, b ;
```

```
b = 20 ;
```

```
*a = b ;
```

```
a = &b ;
```

3. Attempt any THREE of the following: 12

- a) Describe the following terms :
 - (i) Keyword
 - (ii) Identifier
 - (iii) Variable
 - (iv) Constant
- b) List the categories of functions and explain any one with example.
- c) State the use of printf() and scanf() with suitable example.
- d) Give any four differences between call by value and call by reference.

- 4. Attempt any THREE of the following:** **12**
- a) Draw flowchart for finding largest number among three numbers.
 - b) Write a program to display table of given number (Accept number from user).
 - c) Write a program to sum all the even numbers between 1 to 100.
 - d) Develop a program to find the factorial of a number using recursion.
 - e) Write a program to accept ten numbers in an array. Sort array elements and display it.
- 5. Attempt any TWO of the following:** **12**
- a) Write a program to print Fibonacci series starting from 0 and 1.
 - b) Write a program for addition of 3×3 matrices.
 - c) Write a program to compute the sum of all elements stored in an array using pointers.
- 6. Attempt any TWO of the following:** **12**
- a) Write a program using structure to display information of employee which consist of employee id, name, age and salary.
 - b) Write a program to demonstrate use of strcmp(), strcpy(), strlen(), strcat().
 - c) Write a program to perform arithmetic operations on pointer.
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22218

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- Instructions :**
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 - (5) Preferably, write the answer in sequential order.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define the terms (i) Compiler (ii) Interpreter.
- (b) Give syntax of if-else.
- (c) Give use of break statement.
- (d) Give any two math function.
- (e) Define array and its syntax.
- (f) State any four features of pointer.
- (g) Define structure.

2. Attempt any THREE of the following :

12

- (a) Explain algorithm & flowchart.
- (b) Write a program to find whether given number is positive, negative or zero.
- (c) Explain strlen() & strcpy() function with example.
- (d) Write a program to add two numbers using the call by value.

- 3. Attempt any THREE of the following :** **12**
- (a) Enlist any four types of arithmetic operator used in C and give one example of each.
 - (b) Write a program to add two matrices of 3×3 size, store addition in third matrix for given data element.
 - (c) Write a program to access the array elements using pointer.
 - (d) Explain how structure can be initialized with suitable example.
- 4. Attempt any THREE of the following :** **12**
- (a) Explain conditional and bitwise operator with example.
 - (b) Write a program to perform addition, subtraction, multiplication, and division using switch case statement for given data.
 - (c) Explain `strcat()` `strcmp()` with a suitable example.
 - (d) Write a program to display hexadecimal, decimal, octal, binary format of entered number.
 - (e) Write structure DATE having members day, month, year & assign initial values to that structure.
- 5. Attempt any TWO of the following :** **12**
- (a) (i) Differentiate between `while()` & `do while()`.
(ii) Write a program to display even numbers in 1 to 100 using `while()`.
 - (b) Write a C program to count the number of character present in the entered text without using string function.
 - (c) Explain call by reference with suitable example.
- 6. Attempt any TWO of the following :** **12**
- (a) Write a program to find highest marks in a class of n students using array.
 - (b) Explain scope of variable with suitable example.
 - (c) Write a program to access structure members using pointers.
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22218

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- Instructions :**
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- | | Marks |
|---|--------------|
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-