

Instructions to the candidates:

- Two questions are circled or tick marked in the following list. The first is from C++ programming area and the second is from either HTML/JavaScript or SQL.
- Write down the questions and the required program/code/queries in the answer sheet within one hour.
- The answers are to be submitted to the examiner for verification. These programs should be developed in computer after the consent of the examiner and the output should be shown to the examiner.
- Viva voce will be conducted based on the given practical questions.
- The score distribution will be as follows:

| | | |
|---|----------|-----------------|
| (a) C++ Program Logic (Written) | : | 8 Score |
| (b) Debugging Skills (Error correction and Output) | : | 8 Score |
| (c) Proper HTML tags, attributes, Scrip or PHP files if required / Proper SQL commands, clauses, operators (Written) | : | 8 Scores |
| (d) Debugging Skills (Error correction and Output) | : | 8 Scores |
| (e) Practical Log Book (10 C++ Programs, 10 Web applications and 5 SQL) | : | 4 Scores |
| (f) Viva Voce | : | 4 Scores |
| Total | : | 40 Score |

Part A – Programming in C++

1. Input the three coefficients of a quadratic equation and find the roots.
2. Find the sum of the first N natural numbers.
3. Find the sum of the digits of an integer number.
4. Input a number and check whether it is palindrome or not.
5. Display the first N terms of Fibonacci series.
6. Read N numbers into an array and find their average.
7. Read admission number of N students in a class and search for a given admission number in the list. Use linear search method for *Searching*.
8. Create an array to store the heights of some students and sort the values.
9. Find the length of a string without using strlen() function.
10. Find area of a rectangle, a circle and a triangle. Use switch statement for selecting an option from a menu.
11. Find the factorial of a number by defining a function.
12. Input an integer number and display its binary equivalent.

- Swap the contents of two variables using a function.
- Find the net salary of an employee by defining a structure with the details such as Employee Code, Name, Basic Pay, DA, HRA and PF.
- Input string into a character pointer and count the vowels in the string.

Part B – Web Applications (HTML/JavaScript/PHP)

- Design a simple and attractive webpage for Kerala Tourism. It should contain features like background colour/image, headings, text formatting and font tags, images, etc.
- Design a simple webpage about your school. Create another webpage named address.htm containing the school address. Give links from school page to address.htm.
- Design a webpage containing frames that divide the screen vertically in the ratio 50:50. Design two web pages - one containing the list of Indian cricket team members and the second page containing a list of Indian football team members.
- Design a webpage having a list as shown below.

Department of Tourism

Some Tourist Destinations in Kerala

- Beaches
 - Kovalam
 - Muzhuppilangad
 - Kappad
- Hill Stations
 - Munnar
 - Wayanad
 - Gavi
- Wildlife
 - Iravikulam
 - Muthanga
 - Kadalundi

- Design a webpage as shown below using appropriate list tags.

Problem Solving Area in Computer Science of HSE

C++

It is a multi-paradigm language. It supports procedural, functional, object oriented and generic programming.

HTML

It is a standard mark-up language for creating web pages and web applications.

SQL

It is a database computer language designed for the retrieval and management of data in a relational database.

21. Design a web page for a Form as shown below.

Login Window

Enter User Name

Enter Password

22. Design a web page containing a table as shown below.

Terrestrial Planets (Source: NASA)

| Planet | Day Length (In Earth hours) | Year Length (In Earth days) |
|---------|--------------------------------|--------------------------------|
| Mercury | 1408 | 88 |
| Venus | 5832 | 224.7 |
| Earth | 24 | 365.26 |
| Mars | 25 | 687 |

23. A webpage should contain one text box for entering a text. There should be two buttons labelled "To Upper Case" and "To Lower Case". On clicking each button, the content in the text box should be converted to upper case or lower case accordingly. Write the required JavaScript for these operations.
24. Develop a webpage with two text boxes and a button labelled "Show". The user can enter a number in the first text box. On clicking the button, the second text box should display the sum of all numbers upto the given number. Write the required JavaScript.
25. Write a PHP program to accept a number and display it in the following format. If 5 is given, then output will be as follows:

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

Part C – SQL

(Distribution of 8 score: Table creation – 2, Insertion – 2, Four Queries – 1 each)

26. Create a table *Student* with the following fields and insert at least 5 records into the table except for the column Total.

| | | |
|-------------|--------------|-------------|
| Roll_Number | Integer | Primary key |
| Name | Varchar (25) | |
| Batch | Varchar (15) | |
| Mark1 | Integer | |
| Mark2 | Integer | |
| Mark3 | Integer | |
| Total | Integer | |

- Update the column Total with the sum of Mark1, Mark2 and Mark3.
- List the details of students in Science batch.
- Display the name and total marks of students who are failed (Total < 90).
- Delete the student who scored below 30 in Mark3.

27. Create a table *Employee* with the following fields and insert at least 5 records into the table except the column *Gross_pay* and *DA*.

| | | |
|--------------------|----------------|-------------|
| <i>Emp_code</i> | Integer | Primary key |
| <i>Emp_name</i> | Varchar (20) | |
| <i>Designation</i> | Varchar (25) | |
| <i>Department</i> | Varchar (25) | |
| <i>Basic Pay</i> | Decimal (10,2) | |
| <i>DA</i> | Decimal (10,2) | |
| <i>Gross_pay</i> | Decimal (10,2) | |

- Update *DA* with 24% of *Basic Pay*.
- Display the details of employees in *Purchase*, *Sales* and *HR* departments.
- Update the *Gross_pay* with the sum of *Basic Pay* and *DA*.
- Display the details of employee with *gross pay* below 10000.

28. Create a table *Stock*, which stores daily sales of items in shop, with the following fields and insert at least 10 records into the table.

| | | |
|--------------------------|----------------|-------------|
| <i>Item_code</i> | Integer | Primary key |
| <i>Item_name</i> | Varchar (20) | |
| <i>Manufacturer_Code</i> | Varchar (5) | |
| <i>Qty</i> | Integer | |
| <i>Unit_Price</i> | Decimal (10,2) | |

- Find the number of items manufactured by the company "SATA".
- Remove the items with quantity 0.
- Display the details of items in the ascending order of unit price.
- Increase the unit price of all items by 10%.

29. Create a table *Book* with the following fields and insert at least 5 records into the table.

| | | |
|--------------------|----------------|-------------|
| <i>Book_ID</i> | Integer | Primary key |
| <i>Book_Name</i> | Varchar (20) | |
| <i>Author_Name</i> | Varchar (25) | |
| <i>Pub_Name</i> | Varchar (25) | |
| <i>Price</i> | Decimal (10,2) | |

- Display the details of books in the alphabetical order of author's name.
- Reduce the price of books by 10% that are published by SCERT.
- Display the details of book with the highest price.
- Display the number of books published by each publisher.

30. Create a table *Bank* with the following fields and insert at least 5 records into the table.

| | | |
|--------------------|----------------|-------------|
| <i>Acc_No</i> | Integer | Primary key |
| <i>Acc_Name</i> | Varchar (20) | |
| <i>Branch_Name</i> | Varchar (25) | |
| <i>Acc_Type</i> | Varchar (10) | |
| <i>Amount</i> | Decimal (10,2) | |

- Display the account details of "Savings Account" in Kozhikode branch.
- Change the branch name "Trivandrum" to "Tvpmm".
- Display the details of customers in Kollam, Ernakulam and Palakkad branches.
- List the details of customers in Thrissur branch having a balance of Rs. 5000 or more.