Savitribai Phule Pune University
S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to check maximum and minimum of two integer numbers. **(Use Inline function and Conditional operator)** **[Marks 15]**

b) Create a C++ class MyFile with data members file pointer and filename. Write necessary member functions to accept and display **File**. **Overload the following operators:**

Operator	**Example**	**Purpose**
+	F3=F1+F2	Concatenate the contents of file F1 and F2 in F3.
!	!F3	Changes the case of alternate characters of file F3.

[Marks 25]

Q. 2)

a) Write a PHP script to create a simple calculator that can accept two numbers and perform operations like add, subtract, multiplication. **(Use the concept of Class)** **[Marks 15]**

b) Write a PHP script to create student.xml file which contains student roll no, name, address, college and course. Print students detail of specific course in tabular format after accepting course as input. **[Marks 25]**

OR

Q. 2)

a) Create a Node.js file that will convert the output "Hello World!" into upper-case letters. **[Marks 15]**

b) Create a Node.js file that demonstrate create database student DB and student table (Rno, Sname, Percentage) in MySQL. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to find volume of cylinder, cone and sphere. **(Use function overloading).** **[Marks 15]**

b) Write a C++ program to create a class Movie with data members M_Name, Release_Year, Director_Name and Budget. **(Use File Handling)** Write necessary member functions to:
   i. Accept details for 'n' Movies from user and store it in a file "Movie.txt".
   ii. Display Movie details from a file.
   iii. Count the number of objects stored in a file. **[Marks 25]**

Q. 2)

a) Write a PHP script to demonstrate the introspection for examining classes and objects. **(use function get_declared_classes() ,get_class_methods() and get_class_vars()).** **[Marks 15]**

b) Write a script to solve following questions **(Use "Student.xml" file)**
   i) Create a DOM Document object and load this XML file.
   ii) Get the output of this Document to the browser.
   iii) Save this [. XML] document in another format i.e. in [.doc]
   Write a XML Script to print the names of the student present in "Student.xml" file.
   [Marks 25]

OR

Q. 2)

a) Create a Node.js Application that uses user defined Module to return the factorial of given number. **[Marks 15]**

b) Create a Node.js Application that contain the Employee Registration details and write a JavaScript to validate DOB, Joining Date, and Salary. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to interchange values of two integer numbers. **(Use call by reference)** **[Marks 15]**

b) Write a C++ program to accept 'n' numbers from user through **Command Line Argument**. Store all Even and Odd numbers in **file** "Even.txt" and "Odd.txt" respectively. **[Marks 25]**

Q. 2)

a) Write a Calculator class that can accept two values, then add, subtract, multiply them or divide them on request.
For example:
$calc = new Calculator(3, 4);
echo $calc- >add(); // Displays "7"
echo $calc- >multiply(); // Displays "12" **[Marks 15]**

b) Write a script to create "cricket.xml" file with multiple elements as shown below:

```
<CricketTeam>
   <Team country="Australia">
            <player>____</player>
            <runs>_____</runs>
            <wicket>____</wicket>
          </Team>
        </CricketTeam>
```

Write a script to add multiple elements in "cricket.xml" file of category, country="India". **[Marks 25]**

OR

Q. 2)

a) Create a Node.js Application that uses user defined module circle.js which exports the functions area () and circumference () and display the details on console. **[Marks 15]**

b) Create a Node. Js Application for validating student registration form. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to accept Worker information Worker_Name, No_of_Hours_worked, Pay_Rate and Salary. Write necessary functions to calculate and display the salary of Worker. **(Use default value for Pay_Rate)** **[Marks 15]**

b) Write a C++ program to create a **base class** Employee (Emp-code, name, salary). **Derive** two classes as Fulltime (daily_wages, number_of_days) and Parttime (number_of_working_hours, hourly_wages). Write a menu driven program to perform following functions:

1. Accept the details of 'n' employees and calculate the salary.
2. Display the details of 'n' employees.
3. Display the details of employee having maximum salary for both types of employees.

[Marks 25]

Q. 2)

a) Define a class Employee having private members – id, name, department, salary. Define parameterized constructors. Create a subclass called "Manager" with private member bonus. Create 3 objects of the Manager class and display the details of the manager having the maximum total salary (salary + bonus). **[Marks 15]**

b) Create an xml file which should comprise the following:

```
<cricket>
<player>Sachin Tendulkar</player>
<runs>2000</runs>
<wickets>100</wickets>
<noofnotout>20</noofnotout>
</cricket>
```

For at least 5 players.

Write a PHP script to display the details of players who have scored more than 1200 runs and at least 50 wickets. **[Marks 25]**

OR

Q. 2)

a) Create a Node.js Application that accepts first name, last name and date of birth of a Person and define a Module that concatenate firstName and lastName and also calculate the age of the Person. **[Marks 15]**

b) Using Node.js create a S Y BBA(CA) Teachers Profile System. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 4

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Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Consider the following C++ **class**

```
class Point
  {
        int x,y;
    public:
        void setpoint(int, int);      // To set the values of x and y co-ordinate.
        void showpoint();             //  To display co-ordinate of a point P in format (x, y).
  };
```

[Marks 15]

b) Create a C++ **base class** Shape. **Derive** three different classes Circle, Sphere and Cylinder from shape class. Write a C++ program to calculate area of Circle, Sphere and Cylinder. **(Use pure virtual function).** **[Marks 25]**

Q. 2)

a) Create an abstract class Shape with methods area( ) and volume( ). Derive three classes rectangle (length, breath), Circle(radius) and Cylinder(radius, height), Calculate area and volume of all. **(Use Method overriding).** **[Marks 15]**

b) Create student table as follows:
Student(sno, sname, standard, Marks, per).
Write AJAX script to select the student name and print the student's details of particular standard.
[Marks 25]

OR

Q. 2)

a) Create a Node.js Application that performs following operations on Buffer data.
   a. Concat
   b. Compare
   c. Copy **[Marks 15]**

b) Create a Node.js file that Select all records from the "customers" table, and delete the specified record.
[Marks 25]

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 5

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Object Oriented Concepts through CPP and Advance PHP or NODE JS
Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to create two Classes Square and Rectangle. Compare area of both the shapes using **friend function**. Accept appropriate data members for both the classes. **[Marks 15]**

b) Create a C++ class

```
class Matrix
 {
        int **p;
        int r, c;
    public:
        //member functions
 };
```

Write necessary member functions to:

i. Accept Matrix elements
ii. Display Matrix elements.
iii. Calculate transpose of a Matrix.

(Use constructor and destructor) **[Marks 25]**

Q. 2)

a) Write a PHP script, which will return the following component of the URL **(Using response header)**
http://www.college.com/Science/CS.php
List of Components: scheme, host, path
Expected output: Scheme: http
Host: www.college.com
Path: /Science/CS.php **[Marks 15]**

b) Create employee table as follows EMP (eno, ename, designation, salary). Write Ajax program to select the employees name and print the selected employee's details. **[Marks 25]**

OR

Q. 2)

a) Create a Node.js file that opens the requested file and returns the content to the client. If anything goes wrong, throw a 404 error. **[Marks 15]**

b) Create a Node.js file that Insert Multiple Records in "student" table, and display the result object on console. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 6

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program using class with data member char str[50] and function replace (char ch1, char ch2) every occurrence of ch1 in str should be replaced with ch2 and return number of replacement it makes use default value for char ch2. **(Use ch2 as Default Argument)** [**Marks 15]**

b) Create a C++ class Vector with data members size & pointer to integer. The size of the vector varies so the memory should be allocated dynamically.

Perform following operations:

i. Accept a vector
ii. Display a vector in the format (10, 20, 30,….)
iii. Calculate union of two vectors.

(**use parameterized constructor & copy constructor)** **[Marks 25]**

Q. 2)

a) Define an Interface which has method gmtokg() &kgtogm(). Create Class Convert which implements this interface & convert the value kg to gm and gm to kg. [**Marks 15]**

b) Consider the following relational database:

Project (P_Group No, Project_Tiltle)
Student (Seat_no, Name, Class, P_Group_No)

Write an AJAX script to accept project title and display list of students those who are working in a particular project. **[Marks 25]**

OR

Q. 2)

a) Using Node.js create a web page to read two file names from user and append contents of first file into second file. **[Marks 15]**

b) Create a Node.js file that Select all records from the "customers" table, and display the result object on console. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to create a class Number, which contain **static data member** 'cnt' and member function 'Display()'. Display() should print number of times display operation is performed irrespective of the object responsible for calling Display() . **[Marks 15]**

b) Create a C++ class Person with data members Person_name, Mobile_number, Age, City. Write necessary member functions for the following:

i. Search the mobile number of given person.
ii. Search the person name of given mobile number.
iii. Search all person details of given city.

(**Use function overloading**) **[Marks 25]**

Q. 2)

a) Write a PHP Script to create class Shape and its sub-class Triangle, Square, Circle and display area of selected shape **(use concept of inheritance).** **[Marks 15]**

b) Write an Ajax script to get player details from XML file when user select player name. Create XML file to store details of player (name, country, wickets and runs). **[Marks 25]**

OR

Q. 2)

a) Using Node.js create a web page to read two file names from user and combine in third file with all content in Upper case. **[Marks 15]**

b) Create an Node.js Application that contain the Student Registration details and validate Student first and last name should not contains any special symbols / digits and also age should be between 6 to 25. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 8

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Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Consider the following C++ **class**

```
class Person
{       char Name [20];
        charAddr [30];
        float Salary;
        float tax_amount;
public: // member functions
};
```

Calculate tax amount by checking salary of a person

- For salary <=20000 tax rate=0
- For salary >20000||<=40000 tax rate= 5% of salary.
- For salary >40000 tax rate =10% of salary. **[Marks 15]**

b) Create a C++ class Time with data members Hours, Minutes and Seconds. Write necessary member functions for the following: **(Use Objects as arguments)**

i. To accept a time.
ii. To display a time in format hh:mm:ss.
iii. To find difference between two time and display it in format hh:mm:ss.

[**Marks 25]**

Q. 2)

a) Write a PHP program to create a Class Calculator which will accept two values from user and pass as an argument through parameterized constructor and do the following task:
a) Add
b) Subtract
c) Multiply them together or divide them on request. **[Marks 15]**

b) Consider the following entities and their relationships
Movie(movie no,movie_name,release_year)
Actor(actor no,name)
Relationship between movie and actor is many-many with attribute rate in Rs.
Create a RDB in 3 NF. With using three radio buttons (accept, insert, update)
Write an AJAX script to accept actor name and display names of movies in which he has acted.

[**Marks 25]**

OR

Q. 2)

a) Create a Node.js file that writes an HTML form, with an upload field **[Marks 15]**

b) Using Node.js create a Recipe Book. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 9

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Object Oriented Concepts through CPP and Advance PHP or NODE JS
Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to create a class Account with data members Acc_number, Acc_type and Balance. Write member functions to accept and display 'n' account details. **(Use dynamic memory allocation)** **[Marks 15]**

b) Create a C++ class City with data members City_code, City_name, population. Write necessary member functions for the following:

i. Accept details of n cities
ii. Display details of n cities in ascending order of population.
iii. Display details of a particular city.

(**Use Array of object and to display city information use manipulators.)** **[Marks 25]**

Q. 2)

a) Write a PHP Script to demonstrate the concept of Introspection for examining object. **(Using any 3 predefined functions).** **[Marks 15]**

b) Write a PHP script to perform the following stack related operations- insert, delete and display. **(Use concept of self processing form)** **[Marks 25]**

OR

Q. 2)

a) Create a Node.js Application to download jpg image from the Server. **[Marks 15]**

b) Create a Node.js Application that display create Dept-Emp with 1:M relationship and display the min, max, avg salary of Employee for department name. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 10

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class MyArray, which contains single dimensional integer array of a given size. Write a member function to display sum of given array elements. **(Use Dynamic Constructor and Destructor)** **[Marks 15]**

b) Create a **base class** Student with data members Roll_No, Name. D**erives two classes** from it, class Theory with data members M1, M2, M3, M4 and class Practical with data members P1, P2. Class Result(Total_Marks, Percentage, Grade) inherits both Theory and Practical classes. **(Use concept of Virtual Base Class and protected access specifiers)**
Write a C++ menu driven program to perform the following functions:
   i. Accept Student Information
   ii. Display Student Information
   iii. Calculate Total_marks, Percentage and Grade. **[Marks 25]**

Q. 2)

a) Write a PHP program to create class circle having radius data member and two member functions find_circumference() and find_area(). Display area and circumference depending on user's preference. **[Marks 15]**

b) Write an Ajax code to print the content of "Myfile.dat" on clicking on fetch Button. The data fetches from the server using Ajax Technique. **[Marks 25]**

OR

Q. 2)

a) Create a Simple Web Server using Node.js that shows the college information. **[Marks 15]**

b) Using Node.js create a Computer Science department portal. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to create a class Date with data members day, month, and year. **Use default and parameterized constructor** to initialize date and display date in dd-Mon-yyyy format. (Example: Input: 04-01-2021 Output: 04-Jan-2021) **[Marks 15]**

b) Create a C++ class Weight with data members kilogram, gram. Write a C++ program using **operator overloading** to perform following functions:

i. To accept weight.
ii. To display weight in kilogram and gram format.
iii. Overload += operator to add two weights.
iv. Overload == operator to check equality of two weights. **[Marks 25]**

Q. 2)

a) Write a PHP program to convert temperature Fahrenheit to Celsius using **sticky form**.**[Marks 15]**

b) Write an AJAX script to read contact.dat file and print the content of a file in a tabular form when the user clicks on print button. Contact.dat file contains srno, name, residence number, mobile number (Enter at least 3 records in contact.dat file) **[Marks 25]**

OR

Q. 2)

a) Create Node.js Application that binds two listeners to single events. **[Marks 15]**

b) Using Node.js create a User Login System. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to create a class Product with data members Product_id, Product_Name, Qty, Price. Write member functions to accept and display Product information also display number of objects created for Product class. **(Use Static data member and Static member function)** [**Marks 15]**

b) Create a C++ **class** Cuboid with data members length, breadth, and height. Write necessary member functions for the following:

i. void setvalues(float,float,float) to set values of data members.
ii. void getvalues( ) to display values of data members.
iii. float volume( ) to calculate and return the volume of cuboid.
iv. float surface_area( ) to calculate and return the surface area of cuboid.

(Use Inline function) **[Marks 25]**

Q. 2)

a) Create a form to accept Employee detail and display it in next page. **(Use sticky form concept).** [**Marks 15]**

b) Create web Application that contains Voters details and check proper validation for (name, age, and nationality), as Name should be in upper case letters only, Age should not be less than 18 yrs and Nationality should be Indian.**(use HTML-AJAX-PHP)** [**Marks 25]**

OR

Q. 2)

a) Create Node.js application using user defined Rectangle module to find area of rectangle and display the details on console. [**Marks 15]**

b) Create a Node.js Application that Update Marks of given student Rno in “student" table and display the result. [**Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Q. 1)

a) Write a C++ program to accept radius of a Circle. Calculate and display diameter, circumference as well as area of a Circle. **(Use Inline function)** [**Marks 15]**

b) Create a C++ class MyString with data members a character pointer and str_length. **(Use new and delete operator)**. Write a C++ program using **operator overloading** to perform following operation:

i. ! To reverse the case of each alphabet from a given string.
ii. < To compare length of two strings.
iii. + To add constant 'n' to each alphabet of a string. **[Marks 25]**

Q. 2)

a) Write a PHP script to accept a string from user and then display the accepted string in reverse order. **(use concept of self processing form)** [**Marks 15]**

b) Write a PHP script using AJAX concept, to check user name and password are valid or Invalid (use database to store user name and password). [**Marks 25]**

OR

Q. 2)

a) Create a Node.js Application to search a particular word in a file and display result on console. [**Marks 15]**

b) Using Node.js create an Electricity bill calculation System. [**Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 14

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class Fraction with data members Numerator and Denominator. Write a C++ program to calculate and display sum of two fractions. **(Use Constructor)** **[Marks 15]**

b) Write a C++ **class** Seller (S_Name, Product_name, Sales_Quantity, Target_Quantity, Month, Commission). Each salesman deals with a separate product and is assigned a target for a month. At the end of the month his monthly sales is compared with target and commission is calculated as follows:

- If Sales_Quantity>Target_Quantity then commission is 25% of extra sales made + 10% of target.
- If Sales_Quantity = Target_Quantity then commission is 10% of target.
- Otherwise commission is zero.

Display salesman information along with commission obtained. **(Use array of objects)[Marks 25]**

Q. 2)

a) Write PHP program to select list of subjects from list box and displays the selected subject information on next page. **(Use sticky Multivalued parameter).** **[Marks 15]**

b) Write a PHP script using AJAX concept, to give hint to user when he/she type city name in the text field. **[Marks 25]**

OR

Q. 2)

a) Create a Node.js Application to count occurrence of given word in a file and display the count on console. **[Marks 15]**

b) Using Node.js create a eLearning System. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to create a class Machine with data members Machine_Id, Machine_Name, Price. Create and initialize all values of Machine object by using **parameterized constructor and copy constructor**. Display details of Machine using **setw( ) and setprecision( )**. **[Marks 15]**

b) Create a C++ class MyMatrix and Write necessary member functions for the following:

i. To accept a Matrix
ii. To display a Matrix
iii. **Overload** unary '-' **operator** to calculate transpose of a Matrix.
iv. **Overload** unary '++' **operator** to increment matrix elements by 1. **[Marks 25]**

Q. 2)

a) Write a PHP program to accept two string from user and check whether entered strings are matching or not.**(use sticky form concept)** **[Marks 15]**

b) Write Ajax program to carry out validation for a username entered in textbox. If the textbox is blank, print 'Enter username'. If the number of characters is less than three, print' Username is too short'. If value entered is appropriate the print 'Valid username'. **[Marks 25]**

OR

Q. 2)

a) Create a Node.js file named main.js for event-driven application. There should be a main loop that listens for events, and then triggers a callback function when one of those events is detected. **[Marks 15]**

b) Create a Node.js file that Select all records from the "Employee" table, and Update the salary of the given Eno. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class MyMatrix. Write a C++ program to accept and display a Matrix. **Overload** binary '-' **operator** to calculate subtraction of two matrices. **[Marks 15]**

b) Design two **base classes** Student (S_id, Name, Class) and Competition (C_id, C_Name). **Derive** a class Stud_Comp(Rank) from it. Write a menu driven program to perform following functions:

i. Accept information.
ii. Display information.
iii. Display Student Details in the ascending order of Rank of a specified competition.

(Use array of objects) **[Marks 25]**

Q. 2)

a) Write a PHP Script to display Server information in table format **(Use $_SERVER).** [**Marks 15]**

b) Write a script to create XML file "University.xml". The elements details of "University.xml" are as follows :

```
<Univ>
<Uname>---------</Uname>
<City>---------</City>
<Rank>---------</Rank>
</Univ>
```

1) Store the details of at least 3 universities.
2) Link the "University.xml" file to css and get well formatted output as given below.,..
   i) Uname : Color : black ;
      Font-family : copperplate Gothic Light;
      Font-size : 16 pt
      Font : Bold;
   ii) City and Rank : Color : Yellow;
      Font-family : Arial ;
      Font-size : 12 pt
      Font : Bold; [**Marks 25]**

OR

Q. 2)

a) Write Node.js application that transfer a file as an attachment on web and enables browser to prompt the user to download file using express js. [**Marks 15]**

b) Using Node.js display the Employee details order by salary in Table format. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 17

Savitribai Phule Pune University
S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class Student with data members Roll_no, S_Name, Class, Percentage. Accept two students information and display information of student having maximum percentage. **(Use this pointer)** **[Marks 15]**

b) Create a C++ class MyArray with data members

- int *arr
- int size

Write necessary member functions to accept and display Array elements. **Overload the following operators:**

Operator	Example	Purpose
- (Unary)	-A1	Reverse array elements.
+(Binary)	A2=A1+n	Add constant n to all array elements.

[Marks 25]

Q. 2)

a) Write a PHP program to create a simple distance calculator that can accept distance in meters from user. Convert it into centimeter or kilometer according to user preference.
(use radio buttons and Self Processing form) **[Marks 15]**

b) Write a PHP script to generate an XML in the following format.

```
<?xml version = "1.0" ?>
<BookStore>
    <Books>
        <PHP>
            <title>Programming PHP</title>
            <publication>O'RELLY</publication>
            <price>800</price>
        </PHP>
        <PHP>
            <title>Beginners PHP</title>
            <publication>WROX</publication>
                <price>900</price>
        </PHP>
    </Books>
</BookStore>
```

Add more than 5 books details. Display details of book by selecting the publication of book from user.
[Marks 25]

OR

Q. 2)

a) Create Node.js application to bind custom event 'receive_data' with 'data_receive_handler function'. **[Marks 15]**

b. Using Node.js create Application that contains Voters details and check proper validation for (name, age, and nationality), as Name should be in upper case letters only, Age should not be less than 18 yrs and Nationality should be Indian and store the data in database. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 18

Savitribai Phule Pune University
S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to create a class Distance with data members meter and centimeter to represent distance. Write a function Larger( ) to return the larger of two distances. **(Use this pointer)** **[Marks 15]**

b) Create a C++ **base class** Media. **Derive** two different classes from it, class NewsPaper with data members N_Name, N_Editor, N_Price, No_of_Pages and class Magazine with data members M_Name, M_Editor, M_Price. Write a C++ program to accept and display information of both NewsPaper and Magazine. **(Use pure virtual function)** **[Marks 25]**

Q. 2)

a) Write a PHP program to read the XML document "stock_list.xml" (fruits and vegetables) which creates XML document and parse the XML data into an array. **[Marks 15]**

b) Write a Ajax program to get book details from XML file when user select book name. Create XML file to store details of book(name, author, year and price). **[Marks 25]**

OR

Q. 2)

a) Write Node.js application that shows some information when your node.js application gets started, warning when it tries to open an existing file and error message while that specified file is not found. **[Marks 15]**

b) Using Node.js clone the "Hacker News" website. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class Number with integer data member. Write necessary member functions to **overload the operator** unary pre and post increment '++'. **[Marks 15]**

b) Create a C++ **class** for inventory of Mobiles with data members Model, Mobile _Company, Color, Price and Quantity. Mobile can be sold, if stock is available, otherwise purchase will be made. Write necessary member functions for the following:

i. To accept mobile details from user.
ii. To sale a mobile. (Sale contains Mobile details & number of mobiles to be sold.)
iii. To Purchase a Mobile. (Purchase contains Mobile details & number of mobiles to be purchased)

[Marks 25]

Q. 2)

a) Create a XML file which gives details of movies available in "Venus CD Store" from following categories a) Classical b) Action c) Horror

Elements in each category are in the following format

```
<Category>
<Movie Name>----</Movie Name>
<Release Year>----</Release Year>
<Actor Name>-----</Actor Name>
</Category>
```

Save the file with name "movies**.xml".** **[Marks 15]**

b) Write a PHP script for the following: Design a form to accept a number from the user. Perform the operations and show the results.

1) Fibonacci Series.
2) To find sum of the digits of that number.

(Use the concept of self processing page.) **[Marks 25]**

OR

Q. 2)

a) Write Node.js application containing an event handler to open and read the contents of a file. **[Marks 15]**

b) Using Node.js create an application that shows S Y BBA(CA) course structure. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 20

Savitribai Phule Pune University
S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS
Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class Employee with data members Emp_id, Emp_Name, Company_Name and Salary. Write member functions to accept and display Employee information. Design **User defined Manipulator** to print Salary.
(For Salary set right justification, maximum width to 7 and fill remaining spaces with '*')[**Marks 15]**

b) Create a C++ class for a two dimensional points. Write necessary member functions to accept & display the point object. **Overload the following operators**:

Operator	**Example**	**Purpose**
+ (Binary)	P3=P1+P2	Adds coordinates of point p1 and p2.
- (Unary)	-P1	Negates coordinates of point p1.
*(Binary)	P2=P1*n	Multiply coordinates of point p1 by constant 'n'. **[Marks 25]**

Q. 2)

a) Write a script to create XML file named "Course.xml"

```
<Course>
        <Computer Science>
                <Student name>.......</Student name>
                <Class name>......</Class name>
                <percentage>.....</percentage>
        </Computer Science>
</Course>
```

Store the details of 5 students who are in SYBBA(CA). [**Marks 15]**

b) Create a **class Student** with data members Roll_No, Name, PRN number. Derive **class Marks** from student with data members M_PHP, M_OS, M_CPP, M_Networking and derive a **class Result** from class Marks with members (Total_Marks, Percentage, Grade). **(Use Interface Concept)**
Write a Menu driven program in PHP to perform the following operations

i. Accept Student Information
ii. Display Student Information with its result.

[**Marks 25]**

Q. 2)

a) Write Node.js application to create an EventEmitter which will emit an event that contains information about the application's uptime, every second. [**Marks 15]**

b) Using Node.js create an application that shows the mini statement of particular account. (customer table) [**Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to define two **function templates** for calculating the square and cube of given numbers with different data types. **[Marks 15]**

b) Write a C++ program to **overload** 'display_str' **function** as follows:

i. void display_str(char *) - Display a string in double quotes.
ii. void display_str (int n, char *)- Display first n characters from a given string.
iii. void display_str (int m, int n,char *)- Display substring of a given string from position m to n.

[Marks 25]

Q. 2)

a) Create a XML file which gives details of books available in "Pragati Bookstore" from following categories.

1) Yoga
2) Story
3) Technical

and elements in each category are in the following format

```
<Book>
        <Book_Title>     --------------</Book_Title>
        <Book_Author>    ---------------</Book_Author>
        <Book_Price>     --------------</Book_Price>

</Book>
```

Save the file as "Bookcategory.xml" **[Marks 15]**

b) Create a Basic Page in Drupal titled "About Me". Add the details about yourself in the page. Also place this page link in the Main Menu. Display this menu link before all the menu items. Show text "This is <your name>" when move the mouse pointer at this menu link. **[Marks 25]**

OR

Q. 2)

a) Create a Node.js Application to count number of lines in a file and display the count on console. **[Marks 15]**

b) Using Node.js create an application to perform the following operations on customer account(minimum balance should be maintained 1000 and use customer table)

1. Withdraw the amount
2. Balance enquiry **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 22

Savitribai Phule Pune University
S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class MyString with data member character pointer. Write a C++ program to accept and display a string. **Overload '+' operator** to concatenate two strings. **[Marks 15]**

b) Create a C++ class ComplexNumber with data members real and imaginary. Write necessary functions:
   i. To accept Complex Number **using constructor**.
   ii. To display Complex Number in format [x + iy].
   iii. To add two Complex Numbers by using **friend function**. **[Marks 25]**

Q. 2)

a) Create an application that reads "Sports.xml" file into simple XML object. Display attributes and elements. **(Hint: Use simple_xml_load_file() function)** **[Marks 15]**

b) Write Ajax program to print Movie details by selecting an Actor's name.
   Create table MOVIE and ACTOR as follows with 1 : M cardinality
   MOVIE (mno, mname, release_yr) and ACTOR(ano, aname)
   [Marks 25]

OR

Q. 2)

a) Create a Node.js Application to search a particular word in a file and replace all occurrences of that word with another word and bold all. **[Marks 15]**

b) Using Node.js create an application that generates the "eTickect" of railway. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
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Object Oriented Concepts through CPP and Advance PHP or NODE JS
Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class FixDeposit with data members FD_No, Cust_Name, FD_Amt, Interest rate, Maturity amt, Number_of_months. Create and Initialize all values of FixDeposit object by using **parameterized constructor with default value** for interest rate. Calculate maturity amt using interest rate and display all the details. **[Marks 15]**

b) Create a C++ class InvoiceBill with data members Order_id, O_Date, Customer_Name, No_of_Products, Prod_Name[], Quantity[], Prod_Price[]. A Customer can buy 'n' products. Accept quantity for each product. Generate and Display the bill using appropriate **Manipulators**.
(**Use new operator**) **[Marks 25]**

Q. 2)

a) Write a script to create XML file named "College.xml"
The element details of "College.xml" are:

```
<College >
        <Cname>-----</Cname>
        <City>----</City>
        <Rank>----</Rank>
 </College>
```

Display at least 3 colleges Information. **[Marks 15]**

b) Create a Basic Page in Drupal titled "DepartmentPortal". Add the details about Departments and Teacher details in the page. Also place this page link in the Main Menu.
[Marks 25]

OR

Q. 2)

a) Create a Node.js Application that raise and bind an event by returning EventEmitter object from a function. **[Marks 15]**

b) Using Node.js create a Historical place portal. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Slip 24

Savitribai Phule Pune University
S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to calculate mean, mode and median of three integer numbers. (Use **Inline function**) **[Marks 15]**

b) Write a C++ program to read the contents of a "SampleData.txt" **file**. Create "Upper.txt" file to store uppercase characters, "Lower.txt" file to store lowercase characters, "Digit.txt" file to store digits and "Other.txt" file to store remaining characters of a given file. **[Marks 25]**

Q. 2)

a) Write a script to create "vehicle.xml" file with multiple elements as given below

```
<Vehicle>
        <Type = Two Wheeler>
                <Vehicler Name >-------- </Vehicle Name >
                <Company >--------- </Company>
                <Color>--------</Color>
                <Average>------</Average>
        </Type>
</Vehicle>
```

Also add Type = "Four Wheeler" and its elements **[Marks 15]**

b) Write a PHP program to implement Create, Read, Update and Display operations on Teacher table with attributes (tid, tname, address, subject). (Use Radio Buttons) **[Marks 25]**

OR

Q. 2)

a) Create a Node.js Application that wait until the promise returns the result using wait function. **[Marks 15]**

b) Using Node.js create an application that shows the events of the day. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to find average of 3 integer numbers and average of 3 float numbers. (**Use function overloading**) **[Marks 15]**

b) Create a C++ class Time with data members hours, minutes, seconds. Write a C++ program using **operator overloading** to perform the following:

i. != To check whether two Times are equal or not.
ii. >> To accept the time.
iii. << To display the time. **[Marks 25]**

Q. 2)

a) Write a simple PHP program which implements Ajax for addition of two numbers. [**Marks 15]**

b) Create a front-page article in Drupal titled "My Article". Write an article about PHP programming Language and add to the article page. Display an Image appropriate to the Article at the bottom of the Article. Also place this page link in the Main Menu. Display this menu link before all the menu items. Show text "This is <your name>" when move the mouse pointer at this menu link. Also post a comment about your article. [**Marks 25]**

OR

Q. 2)

a) Create a Node.js Application that raise and bind a event using extending the Event Emitter class [**Marks 15]**

b) Using Node.js create a department store portal. [**Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Create a C++ class College, with data members College_Id, College_Name, Establishment_year, University_Name. **Overload operators**>> and << to accept and display College information. **[Marks 15]**

b) Create a **base class** Travels with data members T_no, Company_Name. **Derive** a class Route with data members Route_id, Source, and Destination from Travels class. Also derive a class Reservation with data members Number_of_Seats, Travels_Class, Fare, and Travel_Date from Route.
Write a C++ program to perform following necessary member functions:

i. Accept details of 'n' reservations.
ii. Display details of all reservations.
iii. Display reservation details of a specified Date. **[Marks 25]**

Q. 2)

a) Write a simple PHP program which implements Ajax for Factorial of a numbers. [**Marks 15]**

b) Write a PHP script to read book.XML and print book details in tabular format using simple XML(Content of book.XML are book_code, book_name, author, year ,price). [**Marks 25]**

OR

Q. 2)

a) Create a Node.js Application create a directory and the contents of the directory. [**Marks 15]**

b) Create an Node.js Application that contain the Student Registration details and write a JavaScript to validate DOB, Mobile Number, and email address. [**Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

Savitribai Phule Pune University
S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
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Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to read array of 'n' integers from user and display it in reverse order.
(Use Dynamic memory allocation) **[Marks 15]**

b) Create a C++ class Employee with data members Emp_Id, Emp_Name, Mobile_No, Salary. Write necessary member functions for the following:
   i. Accept details of n employees
   ii. Display employee details in descending order of their salary.
   iii. Display details of a particular employee.
   (Use Array of object and Use appropriate manipulators) **[Marks 25]**

Q. 2)

a) Write an Ajax program to display list of games stored in an array on clicking OK button.
[Marks 15]

b) Create a Block in Drupal titled "CollegeSite". The block should be displayed in the left side of each page. The block should contain announcement about an upcoming event in your college. Also change the theme of your website by following properties:
   a) Change the background colour.
   b) Change the logo image. **[Marks 25]**

OR

Q. 2)

a) Create a Node.js Application to check whether given name is file of directory, if it file, truncate the content after 10 bytes. **[Marks 15]**

b) Using Node.js create a User Login System with forgot password option which can set new password.
[Marks 25]

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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S.Y.B.B.A. (C.A.) Sem-IV (2019 Pattern) University Practical Examination, Mar 2021
406: Computer Laboratory Based on 402 and 404
Object Oriented Concepts through CPP and Advance PHP or NODE JS

Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write a C++ program to create a **class** E_Bill with data members Cust_Name, Meter_ID, No_of_Units and Total_Charges. Write member functions to accept and display customer information by calculating charges. (Rules to calculate electricity board charges)

- For first 100 units : Rs. 1 per unit
- For next 200 units : Rs. 2 per unit
- Beyond 300 units : Rs. 5 per unit

All users are charged a minimum of Rs.150. If the total charge is more than Rs.250.00 then an additional charge of 15% is added. **[Marks 15]**

b) Create a C++ class VisitingStaff with data members Name, No_of_Subjects, Name_of_Subjects[],Working_hours, Total_Salary. (Number of subjects varies for a Staff).Write a **parameterized constructor** to initialize the data members and create an array for Name_of_Subjects **dynamically**. Display Visiting Staff details by calculating salary. (Assume remuneration Rs. 300 per working hour) **[Marks 25]**

Q. 2)

a) Write a PHP script using AJAX concept, to develop user-friendly and interactive search engine (like a Google search engine) **[Marks 15]**

b) Write a PHP Script to create a super class Vehicle having members Company and price. Derive 2 different classes:
LightMotorVehicle (members – mileage)
HeavyMotorVehicle (members – capacity-in-tons).
Define 5 Object of each subclass and display details in table format **[Marks 25]**

OR

Q. 2)

a) Create Node js application using user defined Rectangle module to find area of rectangle and display the details on console. **[Marks 15]**

b) Using Node.js create a matrimonial portal. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**

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Object Oriented Concepts through CPP and Advance PHP or NODE JS
Duration: 3 Hours **Maximum Marks: 100**

Q. 1)

a) Write C++ program to create two classes Integer_Array and Float_Array with an array as a data member. Write necessary member functions to accept and display array elements of both the classes. Find and display average of both the array. **(Use Friend function)** **[Marks 15]**

b) Create a C++ class Marksheet with data members Seat_No, Student_Name, Class, Subject_Name[], Int_Marks[], Ext_Marks[], Total[], Grand_Total, Percentage, Grade. Write member function to accept Student information for 5 subjects. Calculate Total, Grand_Total, Percentage, Grade and use **setw(), setprecision()and setfill()**to display Marksheet. **[Marks 25]**

Q. 2)

a) Derive a class Rectangle from class Square. Create one more class Triangle. Create an interface with only one method called cal_area (). Implement this interface in all the classes. Include appropriate data members and constructors in all classes. Write a program to accept details of a Rectangle, Square and Triangle and display the area. **[Marks 15]**

b) Develop a module in Drupal to create a page showing your contact details (name, roll_no, address, and phone). Also add Navigation on the Home Page called "Contact Details".

[Marks 25]

OR

Q. 2)

a) Create a Node.js Application that uses user defined module circle.js which exports the functions area () and circumference () and display the details on console. **[Marks 15]**

b) Create a Node.js file that demonstrate create database and Hospital table (hReg, hName, address, contact) in MySQL. **[Marks 25]**

Q. 3) Lab Book **[Marks 10]**

Q. 4) Viva **[Marks 10]**