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**Government Engineering College**

**Sec-28 Gandhinagar**

**Sem: - IV**

**Subject: - Object Oriented Programming -I**

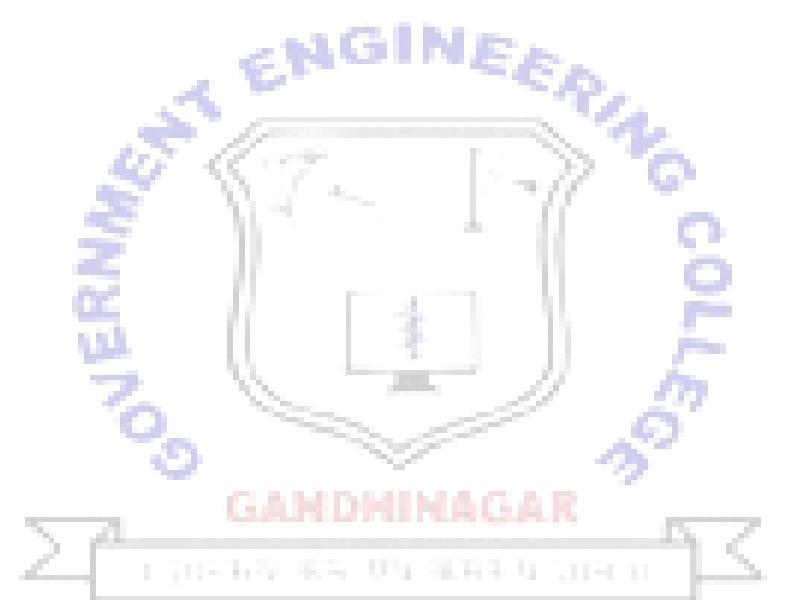
**Subject Code: - 3140705**

**Government Engineering College**

**Sec-28 Gandhinagar**

**Certificate**

**This is to certify that**

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*Mr./Ms. …………………………………………………………….. Of class*

* *Division ………, Enrollment No. ………………………. Has*

*Satisfactorily completed his/her term work in*

*…………………………………. Subject for the term ending* *in*

*……………2022.*

*Date: -*

Contents

1. [**Submission Instructions:** 5](#_Toc103164741)
2. [**Institute Vision/Mission** 6](#_Toc103164742)

[Vision: 6](#_Toc103164743)

[Mission: 6](#_Toc103164744)

1. [**Computer Engineering Department Vision/Mission** 7](#_Toc103164745)

[Vision: 7](#_Toc103164746)

[Mission: 7](#_Toc103164747)

1. [**Program Educational Outcome (PEO)** 8](#_Toc103164748)
2. [**PSO** 8](#_Toc103164749)
3. [**POs** 8](#_Toc103164750)
4. [**Assignment Index** 11](#_Toc103164751)
5. [**Practical Index** 11](#_Toc103164752)
6. [**Assignment 1** 13](#_Toc103164753)
7. [**Assignment 2** 14](#_Toc103164754)
8. [**Assignment 3** 15](#_Toc103164755)
9. [**Assignment 4** 16](#_Toc103164756)
10. [**Practical 1** 17](#_Toc103164757)
11. [**Practical 2** 18](#_Toc103164758)
12. [**Practical 3** 19](#_Toc103164759)
13. [**Practical 4** 20](#_Toc103164760)
14. [**Practical 5** 21](#_Toc103164761)
15. [**Practical 6** 22](#_Toc103164762)
16. [**Practical 7** 23](#_Toc103164763)
17. [**Practical 8** 24](#_Toc103164764)
18. [**Practical 9** 25](#_Toc103164765)
19. [**Practical 10** 26](#_Toc103164766)
20. [**Practical 11** 27](#_Toc103164767)
21. [**Practical 12** 28](#_Toc103164768)
22. [**Practical 13** 29](#_Toc103164769)
23. [**Practical 14** 30](#_Toc103164770)
24. [**Practical 15** 31](#_Toc103164771)
25. [**Practical 16** 32](#_Toc103164772)
26. [**Practical 17** 33](#_Toc103164773)
27. [**Practical 18** 34](#_Toc103164774)
28. [**Practical 19** 35](#_Toc103164775)
29. [**Practical 20** 36](#_Toc103164776)
30. [**Practical 21** 37](#_Toc103164777)
31. [**Practical 22** 38](#_Toc103164778)
32. [**Practical 23** 39](#_Toc103164779)
33. [**Practical 24** 40](#_Toc103164780)
34. [**Practical 25** 41](#_Toc103164781)

# **Submission Instructions:**

1. Write Certificate, Computer vision, mission & subject Cos in handwritten.
2. Assignments’ submission is **Computerized**
3. Practical submission is **Computerized**
   1. **Add** Practical No., Aim, Solution Algorithm and Description
   2. **Add** Executable Code with necessary comments
   3. **Add** Output snapshots having Practical No., Aim, Student Enrolment No, Date & time of execution, and practical input-output.
4. Take the print out (double sided) of this document with practical details and attach your handwritten assignment in it.
5. Update the index and date.
6. Update this document and convert it into PDF and upload again.
7. Save PDF as EnrollmenNo\_OOP1\_Batch.pdf

# **Institute Vision/Mission**

## Vision:

* To be a premier engineering institution, imparting quality education for innovative solutions relevant to society and environment.

## Mission:

* To develop human potential to its fullest extent so that intellectual and innovative engineers can emerge in a wide range of professions.
* To advance knowledge and educate students in engineering and other areas of scholarship that will best serve the nation and the world in future.
* To produce quality engineers, entrepreneurs and leaders to meet the present and future needs of society as well as environment.

# **Computer Engineering Department Vision/Mission**

## Vision:

## Mission:

# **Program Educational Outcome (PEO)**

* To provide students with a strong foundation in the mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems and to prepare them for graduate studies, R&D, consultancy and higher learning.
* To develop an ability to analyze the requirements of the software, understand the technical specifications, design and provide novel engineering solutions and efficient product designs.
* To provide exposure to emerging cutting edge technologies, adequate training & opportunities to work as teams on multidisciplinary projects with effective communication skills and leadership qualities.
* To prepare the students for a successful career and work with values & social concern bridging the digital divide and meeting the requirements of Indian and multinational companies.
* To promote student awareness on the life-long learning and to introduce them to professional ethics and codes of professional practice

# **PSO**

By the completion of Computer Engineering program the student will have following Program specific outcomes.

* Design, develop, test and evaluate computer-based systems by applying standard software engineering practices and strategies in the area of algorithms, web design, data structure, and computer network
* Apply knowledge of ethical principles required to work in a team as well as to lead a team

# **POs**

**Engineering Graduates will be able to:**

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering

fundamentals, and an engineering specialization to the solution of complex engineering

problems.

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex

engineering problems reaching substantiated conclusions using first principles of

mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions**: Design solutions for complex engineering problems

and design system components or processes that meet the specified needs with appropriate

consideration for the public health and safety, and the cultural, societal, and environmental

considerations.

4. **Conduct investigations of complex problems**: Use research-based knowledge and

research methods including design of experiments, analysis and interpretation of data, and

synthesis of the information to provide valid conclusions.

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and

modern engineering and IT tools including prediction and modelling to complex engineering

activities with an understanding of the limitations.

6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to

assess societal, health, safety, legal and cultural issues and the consequent responsibilities

relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering

solutions in societal and environmental contexts, and demonstrate the knowledge of, and need

for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and

norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or

leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex engineering activities with the

engineering community and with society at large, such as, being able to comprehend and

write effective reports and design documentation, make effective presentations, and give and

receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the

engineering and management principles and apply these to one’s own work, as a member and

leader in a team, to manage projects and in multidisciplinary environments.

**12. Life-long learning**: Recognize the need for, and have the preparation and ability to

engage in independent and life-long learning in the broadest context of technological change.

**Object Oriented Programming -I (3140705)**

Course Outcomes (COs)

|  |  |
| --- | --- |
| CO-1 |  |
| CO-2 |  |
| CO-3 |  |
| CO-4 |  |
| CO-5 |  |

# **Assignment Index**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr. No** | **Assignment** | **Date** | **Page No.** | **Sign** |
| 1 | Assignment 1 |  |  |  |
| 2 | Assignment 2 |  |  |  |
| 3 | Assignment 3 |  |  |  |
| 4 | Assignment 4 |  |  |  |

# **Practical Index**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr. No** | **Assignment** | **Date** | **Page No.** | **Sign** |
| 1 | Practical 1 | A2-17/01/2022  A3-18/01/2022 |  |  |
| 2 | Practical 2 | A2-17/01/2022 A3-18/01/2022 |  |  |
| 3 | Practical 3 | A2-24/01/2022 A3-25/01/2022 |  |  |
| 4 | Practical 4 | A2-24/01/2022 A3-25/01/2022 |  |  |
| 5 | Practical 5 | A2-31/01/2022 A3-01/02/2022 |  |  |
| 6 | Practical 6 | A2-31/01/2022 A3-01/02/2022 |  |  |
| 7 | Practical 7 | A2-07/02/2022 A3-08/02/2022 |  |  |
| 8 | Practical 8 | A2-07/02/2022 A3-08/02/2022 |  |  |
| 9 | Practical 9 | A2-14/02/2022 A3-15/02/2022 |  |  |
| 10 | Practical 10 | A2-14/02/2022 A3-15/02/2022 |  |  |
| 11 | Practical 11 | A2-21/02/2022 A3-22/02/2022 |  |  |
| 12 | Practical 12 | A2-21/02/2022 A3-22/02/2022 |  |  |
| 13 | Practical 13 | A2-28/02/2022 A3-08/03/2022 |  |  |
| 14 | Practical 14 | A2-07/03/2022 A3-15/03/2022 |  |  |
| 15 | Practical 15 | A2-14/03/2022 A3-22/03/2022 |  |  |
| 16 | Practical 16 | A2-21/03/2022 A3-29/03/2022 |  |  |
| 17 | Practical 17 | A2-28/03/2022 A3-05/04/2022 |  |  |
| 18 | Practical 18 | A2-04/04/2022 A3-12/04/2022 |  |  |
| 19 | Practical 19 | A2-11/04/2022 A3-19/04/2022 |  |  |
| 20 | Practical 20 | A2-18/04/2022 A3-26/04/2022 |  |  |
| 21 | Practical 21 | A2-02/05/2022 A3-03/05/2022 |  |  |
| 22 | Practical 22 | A2-09/05/2022 A3-10/05/2022 |  |  |
| 23 | Practical 23 | A2-16/05/2022 A3-17/05/2022 |  |  |
| 24 | Practical 24 | A2-23/05/2022 A3-24/05/2022 |  |  |
| 25 | Practical 25 | A2-30/05/2022 A3-31/05/2022 |  |  |

# **Assignment 1**

# **Assignment 2**

# **Assignment 3**

# **Assignment 4**

# **Practical 1**

**Module 1**

**Aim** **Write a Program that displays Welcome to Java, Learning Java Now and Programming is fun.**

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 2**

**Aim:** Write a program that solves the following equation and displays the value x and y:

3.4x+50.2y=44.5 2) 2.1x+.55y=5.9 (Assume Cramer’s rule to solve equation ax+by=e x=ed-bf/ad-bc cx+dy=f y=af-ec/ad-bc )

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 3**

**Aim:** Write a program that reads a number in meters, converts it to feet, and displays the result.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 4**

**Aim:** Body Mass Index (BMI) is a measure of health on weight. It can be calculated by taking your weight in kilograms and dividing by the square of your height in meters. Write a program that prompts the user to enter a weight in pounds and height in inches and displays the BMI. Note:- 1 pound=.45359237 Kg and 1 inch=.0254 meters.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 5**

**Aim:** Write a program that prompts the user to enter three integers and display the integers in decreasing order.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 6**

**Aim:** Write a program that prompts the user to enter a letter and check whether a letter is a vowel or constant.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 7**

**Aim:** Assume a vehicle plate number consists of three uppercase letters followed by four digits. Write a program to generate a plate number.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 8**

**Aim:** Write a program that reads an integer and displays all its smallest factors in increasing order. For example if input number is 120, the output should be as follows:2,2,2,3,5.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 9**

**Aim:** Write a method with following method header. public static int gcd(int num1, int num2) Write a program that prompts the user to enter two integers and compute the gcd of two integers.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 10**

**Aim:** Write a test program that prompts the user to enter ten numbers, invoke a method to reverse the numbers, display the numbers.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 11**

**Aim:** Write a program that generate 6\*6 two-dimensional matrix, filled with 0’s and 1’s , display the matrix, check every raw and column have an odd number’s of 1’s.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 12**

**Aim:** Write a program that creates a Random object with seed 1000 and displays the first 100 random integers between 1 and 49 using the NextInt (49) method.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 13**

**Aim:** Write a program for calculator to accept an expression as a string in which the operands and operator are separated by zero or more spaces. For ex: 3+4 and 3 + 4 are acceptable expressions.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 14**

**Aim:** Write a program that creates an Array List and adds a Loan object , a Date object , a string, and a Circle object to the list, and use a loop to display all elements in the list by invoking the object’s to String() method.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 15**

**Aim:** Write the bin2Dec (string binary String) method to convert a binary string into a decimal number. Implement the bin2Dec method to throw a NumberFormatException if the string is not a binary string.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 16**

**Aim:** Write a program that prompts the user to enter a decimal number and displays the number in a fraction. Hint: Read the decimal number as a string, extract the integer part and fractional part from the string.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 17**

**Aim:** Write a program that displays a tic-tac-toe board. A cell may be X, O, or empty. What to display at each cell is randomly decided. The X and O are images in the files X.gif and O.gif.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 18**

**Aim:** Write a program that moves a circle up, down, left or right using arrow keys.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 19**

**Aim:** Write a program that displays the color of a circle as red when the mouse button is pressed and as blue when the mouse button is released.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 20**

**Aim:** Write a GUI program that use button to move the message to the left and right and use the radio button to change the color for the message displayed.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 21**

**Aim:** Write a program to create a file name 123.txt, if it does not exist. Append a new data to it if it already exist. write 150 integers created randomly into the file using Text I/O. Integers are separated by space.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 22**

**Aim:** Write a recursive method that returns the smallest integer in an array. Write a test program that prompts the user to enter an integer and display its product.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 23**

**Aim:** Write a generic method that returns the minimum elements in a two dimensional array.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 24**

**Aim:** Define MYPriorityQueue class that extends Priority Queue to implement the Cloneable interface and implement the clone() method to clone a priority queue.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)

# **Practical 25**

**Aim:** Write a program that reads words from a text file and displays all the nonduplicate words in descending order.The text file is passed as a command-line argument.

**Code:**

Output snapshot: (In output include practical details and execution date & time with your enrollment number)