

**Government College of Engineering, Aurangabad**  
(An Autonomous Institute of Government of Maharashtra)

**T.E. (ECT) Examination**  
End Semester Examination November-2016  
**ET 345 :: OBJECT ORIENTED PROGRAMMING**

Time: Three Hours

**24 NOV 2016**

Max. Marks: 60

*“Verify the course code and check whether you have got the correct question paper”*

**N. B.:-**

1. All questions are compulsory
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary and state it clearly.
4. Use of non-programmable calculator is allowed.
5. Sample output for every program is expected.

- Q. 1a Define and write syntax of following terms (any three) (06 M)**
- i) Multiple inheritance
  - ii) Nested classes
  - iii) Function overloading
  - iv) Member function
  - v) Data members
  - vi) Object
- Q. 1b Attempt the following (06M)**
- i) State the disadvantages of inline functions.
  - ii) State the rules to define constructor member function.
  - iii) List the characteristics of static data members.
- Q. 2. Attempt any three of the following (18 M)**
- i) Write a program to add two numbers using the concept of friend class.
  - ii) Write a program to perform addition of N numbers using the concept of static data member and static member functions.
  - iii) Write a program for subtraction of two complex numbers by overloading the binary “-” operator.
  - iv) When classes are inherited, write any program to demonstrate the multiple inheritance.
  - v) Write a program for reading the data from the file.
- Q. 3. Attempt any three of the following (18 M)**
- i) Demonstrate the significance of protected access specifier in single and multiple inheritance.
  - ii) Explain different operations of the file handling with suitable example.

- iii) Explain how ambiguity is avoided in multiple inheritance. Give example.
- iv) Clarify the use of new and delete operators with example.
- v) Explain the concept of unary operator overloading with example.

**Q. 4. Attempt any one of the following**

**( 06 M)**

- i) Write a program for concatenation of two string by overloading the '+' operator.
- ii) Write a program to generate mark sheet of 50 students using inheritance
  - a) To enter name of student, branch, year of admission and seat number
  - b) To enter marks of Class test (out of 20), Assignment(out of 20) and End semester examination for five subjects (out of 60)
  - c) Calculate the marks of each subject out of 100 (Class test + Assignment + and End semester examination)
  - d) Calculate subject wise passing of each subject (40% marks out of 100 are required to pass in each subject)
  - e) Calculate the percentage marks obtained
  - f) Display the result (Subject wise passing and percentage)

**Q. 5. Attempt the following**

**( 06 M)**

- Write a program
- a) To enter a matrix
  - b) Divide the matrix into four sub matrices
  - c) Calculate mean of each sub matrix
- using object oriented programming concepts.