Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

(A constituent unit of MAHE, Manipal 576104)

V SEMESTER B.TECH. (BME) DEGREE END SEMESTER EXAMINATIONS NOV-DEC 2018

SUBJECT: OBJECT ORIENTED PROGRAMMING (BME 4006)

(REVISED CREDIT SYSTEM)

Monday, 26th November 2018, 2 to 5 PM

TIME: 3 HOURS **MAX. MARKS: 50**

Instructions to Candidates:

1. **Answer all questions.**
2. **Draw labeled diagram wherever necessary**

1A.. What is "encapsulation"? Explain its benefits. 03

1B. Write a C++ code to specify the class "MACHINE" consisting the following members: 04

Class: MACHINE
Private Data members: • Machine code • Price
Public Member functions: • Read_M() • Display_M()

Write the main function to create objects of the classes M1 and M2, along with the member function of class. The member function Read_M() sets the values of the object "M1" and Dipslay_M for displaying the object details on to the screen.

1C. Write the details of the friend function for accessing the members of the Q1(B). Give their two important characteristics. 03

2A. Write two important characteristics of a constructor. Apply knowledge of constructor to design an object of a class named "Hospital". 03

2B. Explain the design of a parameterized constructors when the constructor name is "Addition". 03

2C. Explain visibility of a base private, protected and public members in the derived class when the derivation mode is protected. Give the details of accessing the members of class from the main function. 04

3A. Differential multiple inheritance and multilevel inheritance with their syntaxes. Give an example for multiple inheritance considering following classes: HOSPITAL, DOCTOR, and PATIENT. 03

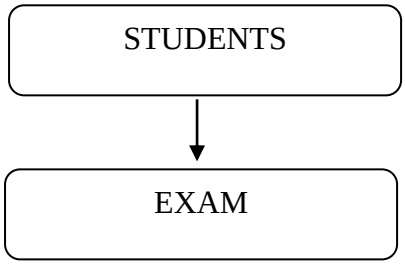
3B. Write a code in C++ to specify a class "distance", consists of two private members "feet" and "inch". Design a member function to set initial values of distance, and another function for displaying the content associated with the object. Design an operator function to *subtract* two objects of the class "distance". 04

3C. Explain parameter passing with "*pass by value"* concept. Distinguish this concept of passing parameter from "*passing by reference*" concept. 03

4A. Explain how you are applying the knowledge of function overloading concept during the design of function "*multiplier*". 03

4B. Explain the opening of a file in the following cases: 03
i) Using constructor of the class **ifstream,** when the given file name is "Result".
ii) Using the member function "**open**".

4C. Write a C++ program to specify a base class called "STUDENT" with student name (S_name) and subject_ID(S_ID) as private data members. Define three member functions one for initializing the object, second updating the object details and third for displaying the object. Write the C++ code to represent the derived class "EXAM", with a protected derivation mode, consists a protected data member "subject marks". 04



5A. Describe the significance of try, throw and catch keywords in the design of try-block consisting throw statements. 03

5B. Explain the benefits of declaration of a function as "virtual function". 03

5C. With the help of a try block catch the "divide by zero" when it is identified 04