

**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY,  
WAKNAGHAT.  
MAKEUP EXAMINATION-2016  
B. Tech. VI Sem.**

**COURSE NAME:** Object-Oriented Systems & Programming **MAX MARKS:** 25

**COURSE CODE:** 10B11CI614

**COURSE CREDITS:** 4

**MAX TIME:** 1 Hr 30 Mins

*Note: All the questions are compulsory. Carrying of mobile phones during examination will be treated as the case of unfair means.*

1. Define a class *Employee* with data members as *empno*, *name* and *designation*. Derive a class *Qualification* from *Employee* class that has data members *UG*, *PG* and *experience*. Create another class *Salary* which is derived from both these classes to display the details of the employee. **[5 marks]**
2. Write a menu-driven program that maintains a file directory to store the *name* and *telephone number* of a person. The program must allow users to add new contacts, search a contact based on phone number and delete the contact. **[6 marks]**
3. Define template class *Array* with member functions to enter and display the element of an array. Now, define another template class *ArrayAdd* that inherits the template class *Array*. The *ArrayAdd* class has an additional method *add()* that appends an element into the existing array. **[4 marks]**
4. Write a program to convert *Minute* class object into *Hour* class object and vice versa, using constructors. **[4 marks]**
5. Does C++ allow programs to use more than one generic data type in a class template? If no, why? If yes, how? **[1.5 marks]**
6. Can a generic function be overloaded? Justify your answer with an example. **[1.5 marks]**
7. When will you prefer to open a file using a constructor? **[1.5 marks]**
8. What happens when a protected member is inherited in a *public* mode and *private* mode? **[1.5 marks]**