



Examination : Third Sessional

Seat No. : \_\_\_\_\_

Date : 14/10/2016

Day : Friday

Time : 11:00 to 12:15

Max. Marks : 36

**INSTRUCTIONS:**

1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

**Q.1 Answer the following:**

[12]

**(A) Do as directed:**

[4]

- 1) Run time polymorphism is achieved by \_\_\_\_\_.
  - i) Friend function
  - ii) Operator overloading
  - iii) Virtual function
  - iv) Function overloading
- 2) If we create a file by 'ifstream' object, then the default mode of the file is \_\_\_\_\_.
  - i) ios :: out
  - ii) ios :: in
  - iii) ios :: app
  - iv) ios :: binary
- 3) A class to be an abstract must
  - i) be a base class
  - ii) not contain any instances of it
  - iii) contain atleast 1 pure virtual function
  - iv) all of the above
- 4) Pointers of derived class are type compatible with pointers of base class. State true or false with justification

**(B) Find out the error if any, correct it and show the output:**

[8]

- 1) 

```
#include<iostream.h>
class base
{ public: void fun(int x=10)
    { cout<<"base::x="<<x; } };
class derived: public base
{ public: virtual void fun(int x=20)
    { cout<<"der::x="<<x; } };
void main(){ derived d1;
    base *ptr=&d1; ptr.fun(); }
```
- 2) 

```
#include<iostream.h>
class test
{ int data;
public:
int tester() {this->data=10;
return this;}
void main(){ test t;
cout<< t->tester();
}
```
- 3) 

```
#include<iostream.h>
class alpha
{ protected: int a;
public: alpha(){a = 50;}
int fun(alpha,beta);};
class beta
{ int a; public: beta(){a=20;}
int fun(alpha,beta);};
friend int fun(alpha x,beta y){return (x.a+y.b)}
void main(){alpha aa;beta bb; cout<<fun(aa,bb);}
```
- 4) 

```
#include<iostream.h>
void main()
{ char* ptr="wxyz";
char ch;
ch = ++*ptr++;
cout<<ch;
}
```

**Q.2 Answer the following:**

[12]

- (A) Explain 'new' and 'delete' operator with example. [2]
- (B) Write a program to find area of a rectangle, square and circle using concept of pure virtual function. [4]
- (C) Create a linked list with all operations mentioned below: [6]
  - 1) Insertion as a head node(first node)
  - 2) Deletion of a node
  - 3) Display all the nodes

**OR**

- (C) Create a class student with stu\_id and stu\_name as data members. Create overloaded constructor to initialize student object, 'copy constructor' and overload 'assignment operator' to copy one student object to another. Clearly show when copy constructor is called and when overloaded assignment operator is called. [6]

**Q.3 Answer the following:**

[12]

- (A) What does 'cin with ios::skipws' means. [2]
- (B) Create a class Distance with feet and inches as data members. Overload '\*' operator to multiply two distance objects. Make it friend function in order to evaluate the following expression: [4]  
 $d3 = 10.5 * d2;$

- (C) Create a program to write and then read the contents of a file which is specified as a command line argument. [6]

**OR**

**Q.3 Answer the following:** [12]

- (A) Briefly explain stream status bits for handling errors in file. [2]  
(B) Create a class student with student roll number and name as data members. Overload extraction and insertion operator to get and display student objects. [4]  
(C) Assume a file 'book.txt' contains details of book(book\_id,book\_name). Write a program to find number of objects of book present in file and display the details of book as per user's choice. [6]

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