

g. #define MAX_NUM 15
Referring to the sample above, what is MAX_NUM?

- (A) MAX_NUM is an integer variable
- (B) MAX_NUM is a precompiler constant
- (C) MAX_NUM is a preprocessor macro
- (D) MAX_NUM is an integer constant

h. What would be the output for the following program?

```
int main()  
{  
int x, y=10,z=10;  
x=(y==z);  
cout<<x;  
return 0; }
```

- (A) 0
- (B) 1
- (C) 10
- (D) Error

i. An exception is caused by

- (A) a hardware problem
- (B) a problem in the operating system
- (C) a syntax error
- (D) a run time error

j. Which one of the following variable names is NOT valid?

- (A) go_cart
- (B) go4it
- (C) 4season
- (D) _what

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Distinguish between procedure-oriented programming and Object-oriented Programming. (8)
- b. What is the main advantage of passing arguments by reference? Explain this with an example. (4)
- c. What does **this** pointer point to? Explain. (4)
- Q.3** a. Write a program to overload the unary minus operator using friend function. (6)
- b. Explain what do you understand by containership? How does it differ from Inheritance? (6)
- c. Why do we need constructors? (4)
- Q.4** a. Distinguish between overloaded functions and function templates. Give example. (8)

- b. How does an inline function differ from a pre-processor macro? Explain with an example. (5)
- c. Why is it necessary to overload an operator? (3)
- Q.5** a. Describe the following with examples:
 (i) Abstract Class
 (ii) Virtual Functions
 (iii) Compile-time polymorphism (10)
- b. How is polymorphism achieved at run time? Explain with coding. (6)
- Q.6** a. How is a class converted into another class? Explain with example. (8)
- b. Write a program which asks for a file name from the keyboard, opens a file with that name for output, reads a line from the keyboard character by character and writes the line onto the file. (8)
- Q.7** a. Write a template function that swaps the values of two arguments passed to it. In main(), use the function with characters and integers. (6)
- b. When do we use multi-catch handlers? Explain with an example. (6)
- c. Differentiate between late and early binding. (4)
- Q.8** a. What is multiple inheritance? Write a program that explains how to pass parameters to the constructors of base classes in multiple inheritance. (8)
- b. Define a class **Date** with three variables for **day, month and year**.
 (i) Write the default and parameterized constructors.
 (ii) Overload the operators <<, >> to read and print Date object.
 (iii) Overload > to compare two dates. (8)
- Q.9** Consider a publishing company that markets both book and audio cassette version to its works.
 (i) Create a class publication that stores the title (a string) and price(type float) of a publication.
 (ii) Derive the following two classes from the above publication class; book which adds a *pagecount*(int) and tape which adds a *playing time* in minutes(float).
 (iii) Each class should have *get_data*() function to get its data from the user at the keyboard.
 (iv) Write a *main*() function to test the book and tape classes by creating instances of these, asking the user to fill in data with *get_data*() and then displaying it using *put_data*(); (2+6+4+4)