AMIETE - CS/IT (OLD SCHEME)

Code: AC11/AT22 Subject: OBJECT ORIENTED PROGRAMMING Time: 3 Hours Max. Marks: 100 **JUNE 2011 NOTE:** There are 9 Questions in all. • Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else. • The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination. Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks. Any required data not explicitly given, may be suitably assumed and stated. Choose the correct or the best alternative in the following: (2×10) Q.1 a. Which one of the following C operators is right associative? (A) = $(\mathbf{B}) \rightarrow$ (C) ^ **(D)** [] b. Which one of the following will read a character from the keyboard and will store it in the variable c? **(B)** getc(&c); (A) c = getc(); (C) c=getchar(); (**D**) getchar(&c); c. Which members of a base class are inherited by a subclass? (A) All the public and private members **(B)** All the protected and private members (C) All the public and protected members **(D)** None of the above d. In C++, a function contained within a class is called (A) a member function **(B)** an operation (C) a class function (D) a method e. Overloading a postfix increment operator by means of a member function takes **(B)** one argument (A) no argument (**D**) three argument (C) two argument f. What is the difference between a declaration and a definition of a variable?

(A) Both can occur multiple times but declaration must occur first
(B) A definition occurs once, but a declaration may occur many times
(C) A declaration occurs once, but a definition may occur many times
(D) Both can occur multiple times but definition must occur first

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 **(D)** a run time error (C) a syntax error j. Which one of the following variable names is NOT valid? **(B)** go4it (A) go_cart (C) 4season **(D)** what **Answer any FIVE Questions out of EIGHT Questions.** Each question carries 16 marks. Distinguish between procedure-oriented programming and Object-oriented **Q.2** a. Programming. **(8)** b. What is the main advantage of passing arguments by reference? Explain this with an example. **(4)** What does **this** pointer point to? Explain. **(4)** c. **Q.3** a. Write a program to overload the unary minus operator using friend function. **(6)** Explain what do you understand by containership? How does it differ from b. Inheritance? **(6)** Why do we need constructors? **(4)** c. **Q.4** a. Distinguish between overloaded functions and function templates. Give example. **(8)**

g. #define MAX_NUM 15

		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.	
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 <i>pagecount</i> (int) and tape which adds a <i>playing time</i> 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-	

How does an inline function differ from a pre-processor macro? Explain with

b.