JAYPEE UNIVERSITY-2007

B.TECH DEGREE EXAMINATION

C++ (OOP)

(INFORMATION TECHNOLOGY, COMPUTER SCIENCE ENGINEERING)

JUNE-2007

TIME-3HOUR
MARK-100

ANSWER ALL THE QUESTIONS

1 Categorize the following relationships into generalization, aggregation, or association.Beware, there may be ternary or n-ry associations in the list, so do not assume every relationship involving three or more object classes is a generalization. Defend your answers.

a) A country has a capital city.

b) A dining philosopher is using a form.

c) A file is an ordinary file or a directory file.

d) Files contain records.

e) A polygon is composed of an ordered set of points.

f) A drawing object is text, a geometrical object, or a group.

g) A person uses a computer language on a project.

h) A person plays for a team in a certain year.

i) A route connects two cities.

j) A student takes a course from a professor.

2 Prepare object diagrams showing at least 10 relationships among the following object classes. Include associations, aggregations, and generalizations. Use qualified associations and show multiplicity balls in your diagrams. You do not need to show attributes or operations. Use association names where needed. As you prepare diagrams, you may add additional object classes.

a) School, playground, principal, school board, classroom, book, student, teacher, cafeteria, rest room, computer, desk, chair, door.

b) Expression, constant, variable, function, argument list, relation operator, term, factor, arithmetic operator, statement, program.

c) File system, file, directory, file name, ASCII file, executable file, directory file, disk, drive, track, sector.

d) Automobile, engine, wheel, brake, brake light, door, battery, muffler, tail pipe.

3 Prepare an instance diagram for the class diagram in figure below for the expression (X+Y/2) / (X/3+Y). Parentheses are used in the expression for grouping, but are not needed in the diagram. The many multiplicity indicates that a term may be used in more than one expression.