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Question Paper Code : 75555

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Sixth Semester

Software Engineering

XCS 364 / 10677 SW 603 — INTERNET PROGRAMMING

(Common to 5 year M.Sc. Information Technology/M.Sc. Computer Technology)

(Regulation 2003 / 2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How is Java associated with Internet?
2. Identify the problem with the given code and provide a solution.

```
public static void convert()  
{ int i = 1245;  
  byte b = i;  
  System.out.println ("Value of byte variable b = " + b); }
```
3. Is it possible to override overloaded methods? Why?
4. What is a vector? How does it differ from an array?
5. Debug the code to rectify the error in the given code.

```
class X  
{ X(String s)  
  { System.out.println(" fsdf ");  
  } }  
class Y extends X { }
```
6. Assume that 2 packages have classes with the same name and they are imported by a java program. How can you overcome the conflicting problem within the imported program?

7. What are the methods used for Inter Thread communication and in which class are these methods defined?
8. Which streams must be used to process external files? Why?
9. How do applets differ from application programs?
10. Why do applet classes need to be declared as public?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the structure of a typical Java program. (6)
- (ii) Write a program that inputs the years in the range 1994 through 1999 and uses for-loop repetition to produce a condensed neatly printed calendar. Watch out for leap years. (10)

Or

- (b) (i) How does Java differ from C and C++? (6)
 - (ii) A company pays its employees as managers (who receive a fixed weekly salary), hourly workers (who receive a fixed hourly wage for up to the first 40 hours they work and "time-and-a-half"-i.e., 1.5 times their hourly wage-for overtime hours worked), commission workers (who receive \$250 plus 5.7% of their gross weekly sales), or pieceworkers (who receive a fixed amount of money for each of the items they produce-each pieceworker in this company works on only one type of item). Write a program to compute the weekly pay for each employee. You do not know the number of employees in advance. Each type of employee has its own paycode: Managers have paycode 1, hourly workers have code 2, commission workers have code 3 and pieceworkers have code 4. Use a switch to compute each employee's pay based on that employee's paycode. Within the switch, prompt the user (i.e., the payroll clerk) to enter the appropriate facts your program needs to calculate each employee's pay based on that employee's paycode. (10)
12. (a) (i) How does a String class differ from a StringBuffer class? (6)
 - (ii) Write a program that stores the matching initial portions of two strings s1 and s2 in **mtch**. For example, if s1 is "placozs" and s2 is "placement", **mtch** becomes "plac". If s1 is "joy" and s2 is "sorrow", **mtch** becomes the empty string. (10)

Or

- (b) (i) When are members of a class declared static? Illustrate with example. State the restrictions of static methods. (8)
- (ii) The table given below lists the sales of four items of a BAE Electricals (8)

Day	Item 1	Item 2	Item 3	Item 4
Monday	1785.25	400.50	145.52	630.80
Tuesday	1575.00	375.85	258.80	543.90
Wednesday	1910.00	180.45	456.94	879.30
Thursday	1745.80	254.58	452.80	75
Friday	1948.85	458.95	250.00	150.80
Saturday	1452.95	258.45	382.10	150.80

The management wants to know the sales history. Write functions (1) to calculate the total daily sales and (2) the weekly sale of each item.

13. (a) (i) Explain the concept of multiple inheritance? How do you implement multiple inheritance in Java? Explain with an example of your choice. (8)
- (ii) Create a class called car, Initialize the color and the body to blue and wagon respectively. There should be two constructors. One is the default constructor that creates a blue wagon. The other constructor should take two arguments (color and body). Write a method to String that returns the color and the body. Create a subclass funcar. In the subclass also there are two constructors. Call the base class constructors from these two constructors. Write another method play CD in the subclass that displays the message "Beautiful music fills the passenger compartment". Execute the methods to displays the following: My car is a blue wagon. My father's car is a red convertible. (8)

Or

- (b) (i) Explain in detail about the steps involved in creating a package. (6)
- (ii) Create a package called Home Pack. Create two classes called Expenditure and Income. The Expenditure class has variables to store value of food, clothing and educational expenses. The Income class has variables to store salary, allowance and rent. Create a class called Budget, which uses the classes of this package to calculate the savings of the family. (10)

14. (a) (i) Explain how exception handling mechanism can be used for debugging a program. (8)
- (ii) Create a class Student with the data members Name, Register Number, Mark1, Mark2, Mark3, Total and Average. Using necessary member functions get the input (caught IOException and Number Format Exception), calculate Total and Average and display the student information's. If the register number exceeds 6 digits then raise an exception Invalid Reg No. Exception. If marks value is greater than 100 or less than 0 then throw an exception called Mark Out Of Range Exception. (8)

Or

- (b) (i) Differentiate between Byte stream and character stream. (6)
- (ii) Write an application that creates four threads. The first thread prints Fibonacci numbers less than 50, the second thread prints prime numbers less than 200, the third thread prints a string "welcome" 20 times and fourth thread prints a string "java 2" 30 times. (10)
15. (a) (i) Describe the different stages in the life cycle of an applet. (8)
- (ii) Create an applet to display a string "I am in the centre" in Courier font, with size 30 and style bold and italic. This text should be centered both horizontally and vertically. (8)

Or

- (b) (i) Describe the various sections of a Web page. (8)
- (ii) Develop an applet that receives three numbers as input and displays the sum and average of the input. Write a HTML page and test the applet. (8)