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[4957]-1077

S.E. (Computer) (II Semester) EXAMINATION, 2016
OBJECT ORIENTED AND MULTICORE PROGRAMMING
(2012 PATTERN)

Time : Two Hours

Maximum Marks : 50

- N.B. :—**
- (i) Neat diagrams must be drawn wherever necessary.
 - (ii) Figures to the right indicate full marks.
 - (iii) Use of Calculator is allowed.
 - (iv) Assume suitable data, if necessary.

1. (a) Write a short note on : [6]
- (i) Reference variable with example.
 - (ii) Virtual destructor.
- (b) Write a short note on types of inheritance with respect to following : [6]
- (i) Single
 - (ii) Multiple
 - (iii) Hierarchical.

Or

2. (a) Explain array of objects with example. [6]
- (b) Write a C++ program for vector addition using operator overloading. Vector consists of 2 attributes ax, ay for magnitude and direction (both int). Create 3 vectors v1, v2, v3 with v1 (3, 4) and v2 (7, 5). After performing $v3 = v1 + v2$; user should be able to print v3's ax and ay values to 10 and 9 resp. [6]

P.T.O.

3. (a) A warehouse management system requires taking user input and displaying items which are present. Use any STL (vector, list, etc) to implement the system. Item consist of 3 attributes (name, code both strings and price in float). Write menu driven C++ program to accept and display items. [6]
- (b) Explain system processes and user processes. [6]

Or

4. (a) Write a short note on following with the help of examples : [6]
- (i) Multiple exception handling
- (ii) Namespaces.
- (b) Create child processes using `posix_spawn( )` function. Use object oriented approach for process management. Write menu driven C++ program to create n processes (where n is any +ve integer given by user) and display their pid's on console. All n child processes will execute the `ps` utility, which resides in `"/bin/ps"`. [6]

5. (a) Differentiate between threads and processes. [7]
- (b) Write a detailed note on termination of threads. [6]

Or

6. (a) What are the similarities between threads and processes ? [6]
- (b) Explain architecture of thread with the help of diagram. [7]

7. (a) What is persistence of an object ? Explain persistence with respect to IPC. [4]
- (b) Write a short note on IPC mechanism using : [6]
- (i) Files
- (ii) Pipes.
- (c) What are the types of synchronization ? [3]

Or

8. (a) Explain following : [9]
- (i) Basic semaphore operations with P() and V()
- (ii) Mutex semaphores in POSIX
- (iii) Delegation model for threaded application.
- (b) Explain PRAM model used for synchronization. [4]