Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[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]