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

Seat No.	

[5352]-167

S.E. (Computer) (Sem. II) EXAMINATION, 2018

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 side indicate full marks.

(*iii*) Use of Calculator is allowed.

(*iv*) Assume suitable data, if necessary.

1. (*a*) Write short notes on : [8]

(*i*) Need of object-oriented programming

(*ii*) Dynamic memory allocation.

(*b*) Explain array of objects with example. [4]

Or

2. (*a*) 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 v_1, v_2, v_3 with v_1 (8, 13) and v_2 (26, 7). After performing $v_3 = v_1 + v_2$; user should be able to print v_3's *ax* and *ay* values to 34 and 20 resp. [8]

(*b*) Differentiate between public, private and protected members. [4]

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. [8]

(*b*) Write a short note on multiple exception handling. [4]

Or

4. (*a*) 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]

(*b*) Write in detail about anatomy/structure of a process. [6]

5. (*a*) What are the similarities between threads and processes ? [6]

(*b*) Explain in detail pthread attribute object. [7]

Or

6. (*a*) Differentiate between threads and processes. [6]

(*b*) Write a detailed note on termination of threads. [7]

7. (*a*) What is persistence of an object ? Explain persistence with respect to IPC. [4]

(*b*) Write short notes on IPC mechanism using : [9]

(*i*) Files

(*ii*) Shared memory

(*iii*) Pipes.

Or

8. (*a*) Explain PRAM model used for synchronization. [4]

(*b*) Explain the following : [9]

(*i*) Basic semaphore operations with P( ) and V( ).

(*ii*) Mutex semaphores in POSIX.

(*iii*) Delegation model for threaded application.