

Total No. of Questions :10]

SEAT No. :

**P2893**

**[4958]-1086**

[Total No. of Pages :3

**T.E. (Computer Engg.)**

**PRINCIPLES OF CONCURRENT & DISTRIBUTED PROGRAMMING  
(2012 Course) (Semester - II) (End - Semester)**

*Time : 2½ Hours]*

*[Max. Marks :70*

*Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6,Q.7 or Q.8, Q.9 or Q.10.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

**Q1) a)** Define computation model. Explain specialized computation model in detail. **[5]**

b) Explain the different types of dependency relationships with suitable example. **[5]**

OR

**Q2) a)** Explain the open CL development framework and architecture with suitable diagram. **[5]**

b) Explain the various parallel programming models. **[5]**

**Q3) a)** Explain the use of concurrent java for multithreading with suitable example. **[5]**

b) Explain Flynn's architectural classification scheme with diagrams. **[5]**

OR

**Q4) Write short note on (any two):** **[10]**

- a) MPI Java.
- b) Shared memory.
- c) CUDA hardware overview

**P.T.O.**

- Q5)** a) Why are distributed operating systems more difficult to design than operating systems for centralized time sharing system? [5]
- b) Explain the different aspects of transparency supported by the distributed operating system. [5]
- c) Why are distributed computing systems gaining popularity? Which DCS model is popularly used nowadays? Justify your answer. [7]

OR

- Q6)** a) Enlist the relative advantages and disadvantages of minicomputer and workstation models. [5]
- b) Explain processor -Pool model with diagram. Enlist the advantages and disadvantages of it. [5]
- c) In what respect are distributed computing systems better than parallel processing system. Explain suitable example of application for which distributed computing systems will be more suitable than parallel processing systems. [7]

- Q7)** a) Explain Domain 0 and communication with xen with suitable diagram. [5]
- b) Explain the various approaches for paravirtualization with suitable diagram. [5]
- c) Draw a diagram showing the X86 virtualization architecture & explain the various components of it. [6]

OR

- Q8)** a) List and explain the advantages of virtualization. [5]
- b) Write a short note on hardware support for virtualization. [5]
- c) Draw a diagram showing the basic organization of a virtual machine monitor and explain the virtualization basics. [6]

- Q9)** a) Write a program in CUDA for matrix multiplication. [5]
- b) Explain block scheduling with respect to CUDA. [5]
- c) Explain the cloud and mobile computing principles. [7]

OR

- Q10)** a) Explain the structure of CUDA Block, Threads with suitable example. [5]
- b) Explain the concept of multi-CPU and multi -GPU with suitable example. [5]
- c) Explain memory handling in CUDA with respect to the following: [7]
- i) Shared memory
  - ii) Constant memory
  - iii) Global memory

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