NOV - 2015

Total No. of Questions : 10]

SEAT No. :

P1342

[Total No. of Pages : 3

[4858] - 1086

T.E. (Computer) (Semester - II)

Principles of Concurrent and Distributed Programming

(2012 Pattern)

Time : 3 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 side indicate full marks.*
4) *Assume suitable data, if necessary.*

Q1) a) Define Computation Model. Explain specialized Computation Models in detail. **[5]**

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

OR

Q2) a) With reference to concurrent Java, explain the following methods used for multithreading. **[5]**

i) sleep ( )

ii) suspend ( )

iii) wait ( )

iv) notify ( )

v) notify All ( )

b) Write an algorithm for parallel quick sort. Explain with suitable example. **[5]**

P.T.O.

Q3) a) A program has 50% of the code that refers to the main memory (RAM), out of which 95% refers to the Cache. The speed of RAM is 100ns and that of Cache is 10 ns. Find the overall speed up of the processor. **[5]**

b) Consider there are three threads P, Q and R. Explain and list the possible dependencies that exist among the threads with respect to counting task dependencies. **[5]**

OR

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

a) Concurrent Yacc.

b) Parallelism with GPU.

c) Systolic Architectures.

Q5) a) Why are distributed operating systems more difficult to design than operating systems for centralized time sharing systems? **[5]**

b) Explain DCE cell configuration and list uses of DCE. **[5]**

c) Why are distributed computing systems gaining popularity? Which DCS model is popularly used now a days? Justify your answer. **[7]**

OR

Q6) a) Explain workstation - server model with diagram. Enlist advantages and disadvantages of it. **[5]**

b) List major issues in designing Distributed Operating System. Explain any two issues in detail. **[5]**

c) Suppose a component of a distributed system suddenly crashes. How will this event inconvenience the users when: **[7]**

i) The system uses the processor - pool model and the crashed component is a processor in the model.

ii) The system uses the processor - pool model and the crashed component is a user terminal.

iii) The system uses the workstation - server model and the crashed component is a server machine.

Q7) a) Explain Dom O and Dom U communication in XEN. [5]

b) Explain various approaches for para-virtualization with suitable diagram. [4]

c) Explain the installation and configuration steps of XEN. [7]

OR

Q8) a) Differentiate between para and full virtualization. [5]

b) List and explain methods for platform virtualization. [4]

c) Draw a diagram showing asymmetric XEN system stating the differences between sysmmetric and asymmetric virtual platform. [7]

Q9) a) Write a program in CUDA for matrix multiplication. [5]

b) Explain various service models used in cloud computing. [5]

c) Explain problem decomposition using multi GPU with an example. [7]

OR

Q10) a) Explain the mobile computing principles. [5]

b) Describe alternative thread block layouts. Explain how to calculate X and Y thread indexes. [5]

c) Explain thread scheduling in GPU with hardware view. Draw a suitable diagram for scheduling cycles. [7]