Roll No. 1600515019....

Total Pages : 03

(145)

M-190145

B.Tech. EXAMINATION, 2019

Semester VI (CBS)

DISTRIBUTED OPERATING SYSTEM

CS-602

Time : 3 Hours *Maximum Marks : 60*

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt a total *five* questions. Q. No. **9** is compulsory. Select *one* question from each Section.

Section A

1. What is distributed system ? What are the various design issues ? Explain. **10**

2. What is Remote Procedure Call (RPC) ? Explain the security issues of RPC. Explain. **10**

Section B

3. What is Deadlock ? How can it be handled in distributed system ? Explain. 10

4. What are the different clock synchronization algorithms in distributed system ? Explain. 10

Section C

5. Explain shared variables in distributed shared memory in detail. 10

6. What are the advantages offered by object based distributed shared memory ? Explain it in detail. 10

Section D

7. (a) Differentiate between stateless and stateful servers. 5

   (b) Explain trends in distributed file system in brief. 5

8. Discuss page based distributed shared memory model in detail. 10

9. (a) What do you mean by an open system ? 2

   (b) Define event triggered real time system. 2

   (c) Name *two* properties that immutable files have. 2

   (d) What is MIMD computer ? 2

   (e) Name five transaction primitives. 2

   (f) What is the function of stubs generated at the client side and the server side ? 2

   (g) What are consistency models ? 2

   (h) Define network operating system. 2

   (i) What is SIMD Computer ? 2

   (j) What is Networks Operating System ? 2

Roll No. .....

Total Pages : 04

July-22-00356

B. Tech. EXAMINATION, 2022

Semester VI (CBCS)

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CS-602

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Note : Attempt *Five* questions in all, selecting *one* question from each Section A, B, C and D. Q. No. 9 is compulsory.

Section A

1. Explain the Evolution of Distributed Computing Systems. Briefly describes the issues in design of Distributed Systems. 10

Dean
H.P. Tech
Hamir

2. What is RPC ? Explain the Transparency of RPC. Explain the different protocols of RPC. 10

Section B

3. What is mutual exclusion problem in distributed systems ? Write a monitor to solve the readers-writers problem that works as follows :

   If readers and writers both are waiting, then it alternates between readers and writers. Otherwise it process them normally (i.e., readers concurrently and writers serially). 10

4. Write short notes on the following : 10

   (a) Process Migration

   (b) Threads

   (c) Processor allocation

Section C

5. Contribute your comments on granularity and page replacement issues in the design of distributed shared memory systems. 10

6. Illustrate what is shared memory ? Explain its approaches with example. Point out the details on from objects to components. 10

Section D

7. What is meant by distributed file systems ? Why is it important ? What are the different types of distributed file system available ? 10

8. List the three main software components that may fail when a client process invokes a method in a server object, giving an example of a failure in each case. Suggest, how the components can be made to tolerate one another's failures ? 10

(Compulsory Question)

9. Answer the following questions in brief : 10×2=20

   (i) What is null RPC ?

   (ii) Illustrate the importance of Caching in distributed systems.

   (iii) What is meant by FIFO ordering ?

   (iv) What is an overlay network ?

   (v) State the name of *two* election algorithms

   (vi) Define marker sending rule.

   (vii) What are the requirements for distributed mutual exclusion algorithms ?

(viii) What are the characteristics of heterogeneity ?

(ix) List the any *four* examples of distributed systems.

(x) Why we need agreement protocols in distributed systems ?