

Government College of Engineering, Aurangabad
(An Autonomous Institute of Government of Maharashtra)

M.E (CSE) FT Examination
End Semester Examination Nov/Dec 2016

CS 542: Distributed Systems

Time: Three Hours

30 NOV 2016

Max. Marks: 60

"Verify the course code and check whether you have got the correct question paper"

N.B.:-

1. *All questions are compulsory*
2. *Assume suitable data if necessary and state it clearly*
3. *Use of non-programmable calculator is allowed*

Q1: Solve any two of the following

12 M

- A] Explain the models of kernel design in DOS with its advantages and disadvantages.
- B] Explain workstation server model with advantages. Justify your answer whether this model utilizes the processing capability of idle workstations?
- C] Differentiate between distributed operating system and network operating system.

Q2: Solve any two of the following

12 M

- A] Explain multiple message buffering. Whether message communication based on multiple message buffering provides better concurrency and flexibility?
- B] Explain the stateful servers used in server management for RPC with example.
- C] What is an orphan call? How are orphan calls handled in the implementation of the following types of call semantics:
 - I] Last one call semantics
 - II] Last of many call semantics
 - III] At least once call semantics

Q3: Solve the following

12 M

- A] A system has three types of resources R_1 , R_2 and R_3 , and their numbers of units are 3, 2 and 2, respectively. Four process P_1 , P_2 , P_3 and P_4 are currently competing

for these resources as below

I] P_1 is holding one unit of R_1 and is requesting for one unit of R_2

II] P_2 is holding two unit of R_2 and is requesting for one unit each of R_1 and R_3

III] P_3 is holding one unit of R_1 and is requesting for one unit of R_2

Whether any of the process are deadlocked ?

B] What do mean by mutual exclusion? Illustrate the centralized approach for mutual Exclusion

Q4: Solve any two of the following

12 M

A] What is ACID? Explain with suitable example the inconsistency due to system Failure

B] Explain how process migration is done in heterogeneous system.

C] Explain with pros and cons of NRNMBs

Q5: Solve any two of the following

12 M

A] Explain the taxonomy of load balancing algorithm in brief.

B] What key distribution problem in cryptography? Explain centralized approach used for key distribution in symmetric cryptosystem.

C] What do mean by passive attacks and active attacks in computer system? Explain.