***U.S.N*** | | | | | | | | | | |

# P.E.S. College of Engineering, Mandya - 571 401

***(An Autonomous Institution affiliated to VTU, Belagavi)***

## Sixth Semester, B.E. - Computer Science and Engineering

## Semester End Examination; May / June - 2019

## Client Server Programming

*Time: 3 hrs* *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

### UNIT - I

1 a. What is the fundamental motivation for client server paradigm? How TCP provides solution for this? 6

b. Differentiate between the following with an example for each :

i) Connectionless versus Connection oriented servers 10

ii) Stateless versus Stateful servers

c. Write a concurrent program that starts two processes. Arrange for each process to print a message “Welcome to socket programming” and then halt. 4

2 a. Write a program that allows any process to execute an independently separately compiled program. 8

b. With figure, explain how application interacts with TCP / IP through system call interface? 6

c. How concurrency is achieved in multi user computer system? 6

### UNIT - II

3 a. Give reasons;

i) Application program should not use sockaddr in variable declaration 6

ii) Application that acts as clients are conceptually simple than application that act as server

b. Explain the system calls made by client and server using TCP. 10

c. Write a program to accept IP address in dotted decimal notation and convert it to binary. 4

4 a. Write and explain an algorithm for connectionless client. 8

b. What is the need for partial close in TCP? Explain. 6

c. List and explain the different methods to find server IP address and protocol port number by a client. 6

### UNIT - III

5 a. Write iterative TCP echo client program. 10

b. Write a program to implement iterative TCP client for daytime. 10

6 a. Write iterative TCP client program to send an integer number to server. 10

b. Implement UPD client for echo service. 10

Contd… 2

**UNIT - IV**

| | | | |
|---|---|---|---|
| 7 | a. | Why concurrency is introduced into server? Explain. | 6 |
| | b. | Explain with scenario how server can be subject to deadlock? | 10 |
| | c. | Why conceptual server algorithm is suffice only for most trivial case? Illustrate with an example. | 4 |
| 8 | a. | Explain which types of servers are suitable for which type of services? | 6 |
| | b. | Explain how to optimize stateless servers? | 10 |
| | c. | Write concurrent connection oriented server algorithm. | 4 |

**UNIT - V**

| | | | |
|---|---|---|---|
| 9 | a. | Explain process structure used for an iterative connection server. Also write a program to implement iterative UDP server for time service. | 12 |
| | b. | Write a procedure namely passive sock( ) to allocate and bind server socket using TCP and UDP. | 8 |
| 10 | a. | Explain the process structures of concurrent connection oriented server. | 6 |
| | b. | Write a program to implement concurrent echo server. | 10 |
| | c. | How UNIX solve the problem of incompletely terminated processes? | 4 |

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