MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2014/2015

TTP3121 – TCP/IP PROGRAMMING

(All Sections / Groups)

27 MAY 2015
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 printed pages including cover page with 5 questions only.

2. Attempt **FOUR** out of **FIVE** questions. All questions carry equal marks and the distribution of marks for each question is given.

3. Please write all your answer in the Answer Booklet provided.

Question 1 [10 Marks]

(a) The application layer in TCP/IP protocols provides applications the ability to access the services of the other layers and defines the protocols that applications use to exchange data. Briefly describe the **THREE** (3) application layer protocols used for the exchange of user information.

[3 Marks]

(b) List **THREE** (3) default types of service with their protocol, TOS bits and description in TCP/IP architecture.

[3 Marks]

(c) Using suitable diagram, briefly discuss **TWO** (2) types of client server architecture.

[4 Marks]

Question 2 [10 Marks]

(a) Whenever a program is executed, it also passes a variable-length list of environment variables. Based on code snippet below, identify and explain the system call that searches environment variable. Give an example of environment variable.

```
main ( ){
char *ptr, *getenv();
if ( (ptr = getenv ("HOME") ) == (char *) 0)
printf ("HOME is not defined \n");
else
printf ("HOME=%s\n",ptr);
exit(0);
}
```

[2 Marks]

(b) Based on the new version of file handling system call "open( )".

(i) Give oflag argument for:
- open for writing only
- open for reading and writing

(ii) Write a code snippet to open for reading only a file named "myfile.dat".

[1 + 2 = 3 Marks]

Continued ...

(c) Differentiate between parent and child process in a fork system call.

[3 Marks]

(d) Briefly explain the signal concept in Unix network programing. Give **TWO** (2) examples of signal name.

[2 Marks]

Question 3 [10 Marks]

(a) With an aid of example, what is the underlying concept of pipe.

[5 Marks]

(b) List **TWO** drawbacks of pipe?

[2 Marks]

(c) What is the purpose of message queue in Interprocess Communication (IPC).

[2 Marks]

(d) What is the use of shared memory?

[1 Mark]

Question 4 [10 Marks]

(a) List the system calls that are involved in a connection-oriented protocol.

[2 Marks]

(b) Write simple echo server and echo client programs using TCP sockets.

[7 Marks]

(c) Explain the inet_addr( ) function with respect to address conversion.

[1 Mark]

Continued ...

Question 5 [10 Marks]

(a) With an aid of diagram, what are the steps in a Remote Procedure Call (RPC)?
[6 Marks]

(b) Explain briefly how Remote Procedure Call (RPC) binds or locates a remote host and the provided services?
[2 Marks]

(c) Describe the select( ) function with respect to I/O multiplexing and discuss the differences between select( ) and poll( ) functions.
[2 Marks]

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