
King Fahd University of Petroleum and Minerals

Information and Computer Science Department

ICS 431: Operating System

EXAM #1 (15%)

DO NOT OPEN UNTIL INSTRUCTED TO DO SO!!!!

Write clearly, precisely, and briefly!!

ID:						
Name:						

Grades		
Section	Max	Scored
A	15	
B	27	
C	22	
D	16	
TOTAL	80	

A. Questions from Chapter 1 (Introduction) (15)

1. Briefly explain:

a. What is the advantage of multiprogrammed systems over batch systems? **(3)**

b. What is the advantage of time-sharing systems over multiprogrammed systems? **(3)**

2. Explain how the following computer resources are protected by the kernel:

a. CPU **(3)**

b. Memory **(3)**

c. I/O devices **(3)**

B. Questions from Chapter 2 (OS structures) (27)

1. Briefly explain

a. The difference between a system call and a system program. **(4)**

b. The difference between message passing and shared memory communications models. **(4)**

c. The microkernel OS structure. **(3)**

d. The uses of a bootstrap program. **(4)**

e. Virtual machines and their benefit. **(6)**

f. The three general methods used to pass parameters between a running program and the O.S. **(6)**

C. Questions from chapter 3 (Processes) (22)

1. Briefly explain

a. Process control block (PCB) (3)

b. The use of medium term scheduler (3)

2. How context switching is done and which part of the kernel does that. (5)

3. Explain how a remote procedure call is executed in a client server environment. (Don't forget to mention the roles of sockets, stub, skeleton, and match maker.) **(6)**

4. Draw a process state diagram, for a processes running in a time sharing environment. **(5)**

