MARKING SCHEME

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G.R. No.	

P118-132(T1)

OCTOBER 2018 / IN - SEM (T1)

F. Y. M. TECH. (COMPUTER ENGINEERING) (SEMESTER -I)

COURSE NAME: OPERATING SYSTEM DESIGN

COURSE CODE: CSPA11182

(PATTERN 2018)

Q.1) a.	3-4 difference between sharing the resource and multiplexing a resource?	[6]
b.	mask off the system call concept [2] and program error interrupts[2]	[4]
	OR	
Q.2) a.	Discussion on both programs.	[6]
b.	Various control registers in user mode	[4]
Q3) a.	Explian variable *argc*. And why it cannot be 0	[6]
b.	Pipes [2] and variable sized messages[2]	[4]
	OR	
Q.4) a.	Signaling[2], rendezvous[2] and the producer-consumer patterns[2]	[6]
b.	Mutual exclusion IPC pattern.	[4]

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SOLUTION P118 -132 (T1)

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q.1) a. sharing the resource : It is a device or piece of information on a computer that can be remotely accessed from another computer, typically via a local area network or an enterprise intranet, transparently as if it were a resource in the local machine. and multiplexing a resource : Typically the resource is shared or *multiplexed* between the users. This can take the form of *time-multiplexing*, where the users take turns (e.g., the processor resource) or *space-multiplexing*, where each user gets a part of the resource (e.g., a disk drive). [6]

b. mask off the system call : standard **interrupt-masking** techniques in the system cannot ignore. It typically occurs to signal attention for non-recoverable hardware errors and program error interrupts : An **interrupt** is a signal from a device attached to a computer or from a **program** within the computer that requires the operating system to stop and figure out what to do next. [4]

OR

Q.2) a. Discuss both the programs from time complexity and space complexity point of view [6]

b. Discuss control registers like CR0,CR1 in user mode [4]

q3A.In C++ argument passing here is a variable *argc*. The name of the variable **argc** stands for "argument count"; **argc** contains the number of arguments passed to the program. The name of the variable **argv** stands for "argument vector". A vector is a one-dimensional array, and **argv** is a one-dimensional array of strings. [6]

b.: Pipe is one-way communication only i.e we can use a pipe such that One process write to the pipe, and the other process reads from the pipe. It opens a pipe, which is an area of main memory that is treated as a ***"virtual file"***. [4]

OR

Q.4) a. The relationship between signaling : **Signals** are a limited form of inter-process communication (IPC), typically used in Unix, Unix-like, and other POSIX-compliant operating systems. A **signal** is an asynchronous notification sent to a process or to a specific thread within the same process in order to notify it of an event that occurred, rendezvous : A rendezvous occurs when two processes synchronize and subsequently exchange messages. Rendezvous is symmetric, in that processes that wish to communicate both use the same primitive; and processes invoke Rendezvous with class designations, not procedure names [6]

b. mutual exclusion IPC pattern: In computer science, **mutual exclusion** is a property of concurrency control, which is instituted for the purpose of preventing race conditions; it is the requirement that one thread of execution never enter its critical section at the same time that another concurrent thread of execution enters its own critical section. [4]