

Department of Computer Science

Gujarat University



Certificate

Roll No: 20

Seat No: _____

This is to certify that Mr./Ms. Harsh K. Mulyana student of MCA Semester – III has duly completed his/her term work for the semester ending in December 2020, in the subject of Operating System towards partial fulfillment of his/her Degree of Masters in Computer Applications.

Date of Submission 10th-dec.2020

Internal Faculty

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Department Of Computer Science
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MCA -

Subject: - Operating System

Name: - Harsh K. Muliyan

Roll No.: - 20

Exam Seat No.: -

* Assignment * "OS"

- (1) Base address :- An address that is used to origin in the calculation of address in the execution of a computer program.
- (2) Batch Address : ^{Pertaining} to the technique of executing a set of computer programs such that each is completed before the next programs of the set is started.
- (3) Binary Semaphore : A semaphore that takes on only the value 0 and 1. A binary Semaphore allows only process or thread to have access to a shared critical resource at a time.
- (4) Block : (1) A collection of contiguous records that are recorded as a units, the units are separated by innerblock gap.
- (5) B-tree : A technique for organizing indexes in order to keep access time to a minimum it stores the data keys in a balanced hierarchy that continually realigns itself as items are inserted and deleted, thus all nodes ~~are always~~ have a similar number of keys.

(6) Busy waiting :- The suspended execution of a part of code while waiting for an event to occur.

(7) Cache memory :- A memory that is smaller and faster than main memory and that is interposed between the processor and main memory. The cache acts as a buffer for recently used memory locations.

(8) CPU (Central Processing Unit) :- The part of a computer that fetches and executes instructions. It consists of an arithmetic and logic unit (ALU), a control unit, and registers, often simply referred to as a processor.

(9) Cluster :- A group of interconnected, whole computers working together as a unified computing resource that can create the illusion of being one machine.

Concurrent :- Pertaining to processes or threads that take place within a common interval of time during which they may have to alternately share common resources.

- (1) Consumable resource: A resource that can be created (produced) and destroyed (consumed). When a resource is acquired by a process.
- (2) database :- A collection of interrelated data often with controlled redundancy, organized according to a schema to serve one or more applications, the data to store so that they can be used by different programs without concern for the data structure or organization.
- (3) Deadlock : (1) An impasse that occurs when multiple processes are waiting for the availability of a resource because it is being held by another process that is in a similar wait state.
- (4) Demand Paging :- The transfer of a page from secondary memory to main memory storage at the movement of need.
- (5) Device driver :- An operating system module that deals directly with a device or I/O module.
- (6) direct access :- The capability obtain the data from a storage device or to enter data in to a storage.

- (17) Direct memory access (DMA). :-
A form of I/O in which a special module, called a DMA module, controls the exchange of data between main memory and I/O device.
- (18) Disable interrupt: A condition usually created by the operating system, during which the processor will ignore interrupt signals of a specified class.
- (19) Disk allocation table :- a table that indicates which blocks on secondary storage are free and available for allocation to files disk block between disk memory and the rest of main memory.
- (20) Dispatch: To allocate time on a process to jobs or tasks that are already for execution.
- (21) distributed Operating System :- A common operating system shared by a network of computers the distributed operating system provided support for

interprocess communications.

(22) Dynamic relocation:- A process that assigns new absolute address to a computer program during execution so that the program may be executed from a different area of main storage.

(23) ~~over~~ enable interrupt:- A condition, usually created by the operating system, during which the processor will respond to interrupt request signals of a specification class.

(24) External fragmentation:- Occurs when memory is divided into variable-size partitions corresponding to the blocks of data assigned to the memory.

(25) file allocation table (FAT):- A table that indicates the typical location on secondary storage of the space allocated to a file.

(26) File Management System:- A set of system software that provides services to user and application.

in the use of files.

(27) File Organization :- the physical order of record in a file, as determined by the access method to store and retrieve them.

(28) First come First Served (FCFS) :- also known as FIFO (First come First out). A queuing technique in which the next item to be retrieved is the item that has been in the queue for the longest time.

(29) Hash file :- A file in which records are accessed according to the value of a key field. Hashing is used to locate a record on the basis of its key value.

(30) Hashing :- The selection of a storage location for an item of data by calculating the address as a function of the contents of the data.

(31) Index access :- Referring to the organization and accessing of the records of a storage structure through a separate index to the location of the stored records.

(32) Indexed file :- A file in which records are accessed according to the value of key fields.

=> An index is required that indicates the location of each record on the basis of each key value.

(33) Indexed sequential access :- A file in which records are ordered according to the values of a key field.

=> The main field supplemented with an index file that contains a partial list of key value.

(34) Instruction Cycle :- The fine period during which one instruction is fetched from memory and executed when a computer is given an instruction in machine language.

(35) Internal fragmentation :- Occurs when memory is divided into fixed-size partitions.

⇒ if a block of data is assigned to one or more partitions, then there may be wasted space in the last partition.

(36) Interrupt :- A suspension of a process such as the execution of a computer program, caused by an event external to that process and performed in such a way that the process can be resumed.

(37) Interrupt Handler :- A routine, generally part of operating system.

⇒ when an interrupt occurs, control is transferred to the corresponding interrupt handler.

(38) Job :- A set of computation steps package to run as a unit.

(39) Kernel :- A portion of the operating system that includes the most heavily used portions of software.

=> Generally, the Kernel is maintained permanently in main memory.

(40) Kernel Mode :- a privileged mode of execution reserved for the kernel of the operating system.

=> also referred to as System mode or privileged mode.

(41) Live Lock :- A condition in which two or more processes continuously change their state in response to changes in the other process, without doing any useful work.

(42) Logical Address :- A reference to a memory location independent of the current assignment of data to memory.

=> A translation must be made to a physical address before the memory access can be achieved.

(43)

logical record :- A record independent of its physical environment. Portions of one logical record may be located in different physical records or several logical records or parts may be located in ^{one} physical record.

(44)

Malicious software :- Any software designed to cause damage to an unsuspectingly concealed software (malware) is treacherously concealed within or masquerades as legitimate software.

(45)

memory cycle time :- The time it takes to read one word from or write one word to memory.

=> This is inverse of the rate at which words can be read from or written to memory.

(46) Memory Partitioning

- ⇒ The subdividing of storage into dependent & sections.
- ⇒ Message a block of information that may be exchanged between processes as a means of communication.

(47) Micro-kernel :-

- ⇒ A small knowledge operating system core that provides process scheduling memory management.
- ⇒ Controls communication services and relies on the other processes to perform some of the functions traditionally associate with the operating system ~~microkernel~~.

(48) Multiprocessing :-

- ⇒ A mode of operation that provides for parallel processing by two or more processes or by two or more processors of a microprocessor.

(49) Multiprogramming level:

⇒ Multiplies the number of processes that are partially or fully resident in main memory.

(50) Multitasking:

- ⇒ A mode of operation that provides for the concurrent performance or interleaved execution of two multiprogramming using different terminology.
- ⇒ Mutex similar to a binary Semaphore, A key difference between the two is that the process must locks that mutex.
- ⇒ mutex execution: - A condition in which there is a set of processes, only one of which is able access a given resource or platform a giving function at any time.

(51) Operating System:

- ⇒ Software that controls the creation of program and that provides services such as resource allocation, scheduling

input, output control, and data management

(52) Page :-

- => In virtual storage a fixed ^{length} block that has virtual address and that is transferred as a unit between main memory and secondary memory.

(53) Page fault :-

- => Occurs when the page containing a referenced word is not in main memory. This causes an interrupt and requires that the proper page be brought into main memory.

(54) Page frame :-

- => A fixed-size contiguous block of main memory to hold a page.

(55) Paging :-

- => The transfer of pages between main memory and secondary memory.

(56) Physical address :

=> the absolute location of a unit of data in memory (e.g word or byte in main memory & block on Secondary memory).

(57) Pipe :-

- => A circular buffer allowing two processes to communicate on the producer consumer model, thus it is a first-in-first-out queue.
- => written by one process and read by another.
- => In some systems, the pipe is generalized to allow any item in the queue to be selected for consumption.

(58) Preenchion :-

- => Reclaiming a resource from a process before the process has finished using it.

(59) Preparing :-

- => the retrieval of pages other than the one demanded by a page fault.
- => the hope is that the additional page will be needed in the near future.
- => (or) converting disk I/O Concise demand Paging.

(60) Process :-

- => A program in execution.
- => A process is controlled and scheduled by the operating system, same as task.

(61) Process control block :-

- => The manifestation of a process in an operating system, it is a data structure containing information about the characteristics and state of the process.

(62) Process State :-

- => All of the information that the operating system needs to manage a process and that the processor needs to properly execute the process.
- => the process state includes the contents of the various processor registers, such as the program counter and data register.
- => it is same as execution context.

(63) Processor :-

- => In a computer, a functional unit that interprets and executes instruction.
- => A processor consists of ~~test~~ an instruction control unit and arithmetic unit.

(64) Program Counter :-

- => Instruction address register.

(65) Programmed I/O :-

=> A form of I/O in which the CPU issues I/O command to an I/O module and must then wait for the operation to be complete before proceeding.

(66) Real-time System :-

=> An operating system that must schedule and manage real time task.

=> Real-time task.

(77) Real time task :-

=> A task that is execute in connection with some process or function or set of events external to the computer system and that must meet one or more deadline to interact effectively and correctly with the external environment.

(68) Registers :-

=> High-speed memory internal to the CPU. for

=> Some registers are ~~longer~~ visible

that is, available to the programmer via the machine instruction set.

⇒ Other registers are used only by the PDP CPU, for control purposes.

(Q9) Relative address :-

⇒ An address calculated as + a displacement from a base address.

(Q10) Response time :-

⇒ In a data system, the elapsed time between the end of transmission of an enquiry message and the beginning of the receipt of a response message, measured at the response message, measured at the enquiry terminal.

(Q11) Round Robin :-

⇒ A scheduling algorithm in which processes are activated in a fixed cyclic order.

=> that is all processes are in can not proceed because it is waiting for some event.

(72) Scheduling :- To select jobs or task that are to be dispatched.

=> In some operating system, other units of work, such as Input / Output operations, may also be scheduled.

(73) Secondary Memory :-

=> Memory located outside the computer system itself that is it cannot be processed directly by the processor.

=> it must first be copied into main memory.

=> Example:- include disk and tape.

(74) Segment :-

=> In virtual memory a block that has a virtual address.

=> The blocks of a program may be of unequal varying lengths.

(75) Segmentation:-

=> The division of a program or application into segments is part of a virtual memory scheme.

(76) Semaphore:-

=> An integer value used for signaling among processes.

=> Only three operations may be performed on a semaphore.

=> the decrement operation may result in the blocking of a process, and the increment operation may result in the increment operation may result in the unblocking of a process.