A system has a resource 'Z' with 20 instances; each process needs 5 instances to complete its execution. What is the minimum number of processes in the system that may cause a deadlock?	1. 6 2. 10 **3. 5** 4. 4
Consider n processes sharing the CPU in a round robin fashion. Assume that the context switch takes s seconds. What must be the quantum q such that the overhead of context switching is minimized and at the same time each process is getting guaranteed execution on the CPU at least once in every t seconds?	**1. q= (t - ns)/ (n-1)** 2. q = (t - ns)/ (n+1) 3. q = (t - ns)/ (n*1) 4.q= (t - ns)/ n
Four jobs to be executed on a single processor system arrive at time 0 in order A, B, C, and D. Their burst time requirements are 4,1,8,1 time units respectively. Find the completion time of A under round robin scheduling with a time slice of one-time unit.	**1. 9** 2. 7 3. 10 4. 8
Paging suffers from ……..	**1. Internal fragmentation** 2.segmentation fault 3. External fragmentation 4. fatal error
Suppose a disk has 201 cylinders, numbered from 0 to 200. At some time the disk arm is at cylinder 100, and there is a queue of disk access requests for cylinders 30, 85, 90, 100, 105, 110, 135 and 145. If Shortest-Seek Time First (SSTF) is being used for scheduling the disk access, the request for cylinder 90 is serviced after servicing _____ number of requests.	1. 4 **2. 3** 3. 2 4. 5
The port that is used for the generation of handshake lines in mode 1 or mode 2 is	1. a) port A 2. b) port B 3. c) port C Lower **4. d) port C Upper**
Error correction and error detection happens in _____ layer.	1. Application layer 2. Session layer 3. Physical layer **4. Data link layer**

The average time required to reach a storage location in memory and obtain its contents is called the	**1. access time** 2. transfer time 3. seek time 4. turnaround time
Output------?	1. Error output 2. 4 3. 8 4. 44 **Incomplete question in VTOP**
a are the tags used for ?	1. Audio-voiced text **2. Adding links to your page** 3. Adding header to your page 4. Aligning text
Creating a B Tree index for your database has to specify in _____.	1. TCL 2. SDL 3. VDL 4. **DDL**
_____is the first schema to be designed when you are developing a DBMS	**1.conceptual** 2. hierarchical 3. physical 4. relational
To change the access path programs are categorized under _____ data independence.	**1. Physical** 2. external 3. logical 4. internal
A circuit produces 1's complement of the input word, one application is binary subtraction. It is called	1. BCD Converter 2. Multiplexer **3. Register** 4. Logic gate
Passing the request from one schema to another in DBMS architecture is called as _____	1. network 2. Relational 3. Communication **4. Mapping**
The number of clock pulses needed to shift one byte of data from input to the output of a 4-bit shift register is	1. 10 2. 12 **3. 16** 4. 32
A full binary tree with n leaves contains	1. log 2 n nodes. 2. 2n nodes 3. n nodes. 4. **2n –1 nodes.**

UDP has a smaller overhead then TCP, especially when the total size of the messages is	1. sequenced 2. segmented 3. **small** 4. large
_____gives the concepts to describe the structure of the database.	**1. Data Model** 2. Relational model 3. Domain model 4. Schema model
_____is the description of the database	1. snapshot 2. schema evolution 3. schema construct **4. schema**
A binary tree in which all the leaves are on the same level is called as:	1. Complete binary tree 2. Binary search 3. Full binary tree **4. Strictly binary tree (Perfect Binary Tree)**
For 3 page frames, the following is the reference string: **7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1.** **How many page faults does the FIFO page replacement algorithm produce?**	1. 11 2. 12 **3. 15** 4. 10
For an undirected graph with n vertices and e edges, the sum of the degree of each vertex is equal to	1. 2n 2. pow(e,2)/2 3. (2n-1)/2 **4. 2e**
The complexity of multiplying two matrices of order m*n and n*p is	1. mp 2. np **3. mnp** 4. mn
The major difference between a moore and mealy machine is that	1. output of former depends only on the present input 2. output of the former not depends only on the present state 3. output of the former depends on the present state and present input **4. output of the former depends only on the present state**
----------is a description of the database	1. Schema Construct 2. Metadata 3. Relation State **4. Schema**

----------is data about data	1. Relation State **2. Metadata** 3. Schema Construct 4. Schema
1024 bit is equal to how many byte	1. 64 Byte 2. 32 Byte 3. 1 Byte **4. 128 Byte**
6. Consider the below code fragment: **if(fork k( ) = = 0)** **{** **a= a+5; printf(?%d, %d \n?, a, &a);** **}** **else** **{** **a= a - 5;** **printf(?%d %d \n?, 0, &a);** **}** **Let u, v be the values printed by parent process and x, y be the values printed by child process. Which one of the following is true?**	1. u + 10= x and v != y **2. u + 10= x and v = y** 3. u= x + 10 and v = y 4. u= x + 10 and v!= y
_____ is used to define a special CSS style for a group of HTML elements	**1. class attribute** 2. name attribute 3. group attribute 4. id attribute
_____ operate at the network layer, connecting two or more network segments that use the same or different data link layer protocols, but the same network layer protocol.	**1. Routers** 2. Firewall 3. Bridges 4. Gateway
_____ OS pays more attention on the meeting of the time limits.	1. Online **2. Real time** 3. Distributed 4. Network
_____ selects the jobs from the pool of jobs and loads into the ready queue.	1. Program counter 2. Medium term scheduler 3. Short term scheduler **4. Long term scheduler**
_____ register keeps track of the instructions stored in program stored in memory.	**1. PC (Program Counter)** 2. AR (Address Register) 3. XR (Index Register) 4. AC (Accumulator)

_____ constraint is specified between two relations and is used to maintain the consistency among tuples of the two relations	1. primary **2. referential** 3. secondary 4. check
A 2 MHz signal is applied to the input of a J-K lip-lop which is operating in the 'toggle' mode. The frequency of the signal at the output will be	1. 6 MHz **2. 8 MHz** 3. 1 MHz 4. 2 MHz
A 20-bit address bus allows access to a memory of capacity	**1. 1 MB** 2. 2 MB 3. 4 MB 4. 8 MB
A 4-way set-associative cache memory unit with a capacity of 16 KB is built using a block size of 8 words. The word length is 32 bits. The size of the physical address space is 4 GB. The number of bits for the TAG field is	1. 22 2. 19 **3. 20** 4. 21
A binary tree T has 20 leaves. The number of nodes in T having two children is	1. 99 2. 7 **3. 19** 4. 34
A Boolean function may be transformed into	1. logical graph 2. map **3. logical diagram** 4. matrix
A circuit that converts n inputs to 2^n outputs is called	**1. Decoder** 2. Comparator 3. Encoder 4. Carry Look Ahead
A computer has a 256 KByte, 4-way set associative, write back data cache with block size of 32 Bytes. The processor sends 32 bit addresses to the cache controller. Each cache tag directory entry contains, in addition to address tag, 2 valid bits, 1 modified bit and 1 replacement bit. The size of the cache tag directory is	1. 40 2. 160 **3. 16** 4. 32
A computer system implements 8 kilobyte pages and a +32-bit physical address space. Each page table entry contains a valid bit, a dirty bit, three permission	**1. 36** 2. 35 3. 33 4. 34

bits, and the translation. If the maximuml size of the page table of a process is 24 megabytes, the length of the virtual address supported by the system is _____ bits.	
A critical region is	1. The most important part of the program 2. The part of the kernel that interfaces directly to the device controllers 3. The part of a program in which a bug would cause the program to exit **4. The part of a program in which shared data is accessed**
A data dictionary does not provide information about	1. Where data is located **2. The size of the storage disk** 3. Who owns or is responsible for the data 4. How the data is used
A file system with 300 GByte disk uses a file descriptor with 8 direct block addresses, 1 indirect block address and 1 doubly indirect block address. The size of each disk block is 128 Bytes and the size of each disk block address is 8 Bytes. The maximum possible file size in this file system in KBytes is	**1. 35** 2. 3 3. 280 4. Dependent on Disk
A graphical HTML browser resident at a network client machine Q accesses a static HTML webpage from a HTTP server S. The static HTML page has exactly one static embedded image which is also at S. Assuming no caching, which one of the following is correct about the HTML webpage loading (including the embedded image)?	1. A single HTTP request from Q to S is sufficient, and a single TCP connection between Q and S is necessary for this **2. Q needs to send at least 2 HTTP requests to S, but a single TCP connection to server S is sufficient** 3. Q needs to send at least 2 HTTP requests to S, each necessarily in a separate TCP connection to server S 4. A single HTTP request from Q to S is sufficient, and this is possible without any TCP connection between Q and S
A group of bits that tell the computer to perform a specific operation is known as	**1. Instruction code** 2. A collection of wires 3. A collection of shared communication wires 4. A software to transport data
A heap memory area is used to store the	**1. Memory of objects** 2. Local variables declared in the method 3. Global variables 4. Static variables

A page fault occurs	1. when the process enters the blocked state 2. when the page is in the memory **3. when the page is not in the memory** 4. when the process is in the ready state
A priority queue is implemented as a Max-Heap. Initially, it has 5 elements. The level-order traversal of the heap is: 10, 8, 5, 3, 2. Two new elements 1 and 7 are inserted into the heap in that order. The level-order traversal of the heap after the insertion of the elements is:	1. 10, 8, 7, 1, 2, 3, 5 2. 10, 8, 7, 2, 3, 1, 5 3. 10, 8, 7, 5, 3, 2, 1 **4. 10, 8, 7, 3, 2, 1, 5**
A process executes the code **fork ();** **fork ();** **fork ();** **The total number of child processes created is**	1. 4 **2. 7** 3. 8 4. 3
A processor can support a maximum memory of 4 GB, where the memory is word-addressable (a word consists of two bytes). The size of the address bus of the processor is at least _____ bits	1. 33 **2. 31** 3. 32 4. 30
A Program Counter contains a number 825 and address part of the instruction contains the number 24. The effective address in the relative address mode, when an instruction is read from the memory is	**1. 850** 2. 849 3. 802 4. 801
A race condition occurs when	1. two concurrent activities interact to cause a processing error and two users of the DBMS are interacting with different files at the same time **2. two concurrent activities interact to cause a processing error** 3. None of these 4. two users of the DBMS are interacting with different files at the same time
A RAM chip has a capacity of 1024 words of 8 bits each (1K*8). The number of 2*4	1. 7 2. 6 3. 4 **4. 5**

decoders with enable line needed to construct a 16K*6 RAM from 1K*8 RAM is	
A receiving host has failed to receive all of the segments that it should acknowledge. What can the host do to improve the reliability of this communication session?	1. Send a different source port number. **2. Decrease the window size.** 3. Restart the virtual circuit. 4. Decrease the sequence number.
A relation R(a,b,c,d,e,f) with the FDs { a -> b,c; c -> d, e, f } satisfies ----- normal form at the most where ?a? is the primary key.	1. 1NF 2. 3NF 3. BCNF 4. 2NF
A relation schema R is said to be in 4NF if for every MVD x-->>y that holds over R	1. x is subset of y is true 2. x is subset of y is true (OR) x U y is R is true 3. x U y is R is true 4. x is subset of y is true (AND) x U y is R is true
A ring counter is same as	**1. shift register** 2. Ripple carry Counter 3. Parallel-counter 4. up-down counter
A sequential circuit outputs a ONE when an even number (> 0) of one's are input; otherwise the output is ZERO. The minimum number of states required is	**1. 2** 2. 0 and 1 3. 1 4. 0
A solution to the Dining Philosopher?s problem which avoids Deadlock can be:	1. Philosophers can select any fork randomly **2. Ensure that all the Philosophers except one pick up the left fork while that particular philosopher pick up right fork before left fork** 3. Deadlock cannot be avoided 4. Ensure that all the Philosopher?s pick up the left fork before the right fork
A system has 'n' processes and each process need 2 instances of a resource. There are n+1 instances of resource provided. This could:	1. lead to deadlock 2. lead to starvation & the deadlock 3. leads to inconsistency 4.leads to system crash **(Never leads to deadlock) none of the above**
A system uses 3 page frames for storing process pages in main memory. It uses the Least Recently Used (LRU) page replacement policy. Assume that all the page frames	1. 7 2. 4 **3. 6** 4. 2

are initially empty. What is the total number of page faults that will occur while processing the page reference string given below? 4, 7, 6, 1, 7, 6, 1, 2, 7, 2	
Adjacent squares in a K-Map represents a	1. Circle 2. Variable 3. Literal **4. Minterm**
After fetching the instruction from the memory, the binary code of the instruction goes to	1. Accumulator 2. Program counter 3. Instruction pointer **4. Instruction registers**
AJAX made popular by	1. Microsoft 2. IBM 3. Sun Micro system **4. Google**
All the functions of the ports of 8255 are achieved by programming the bits of an internal register called	1. data bus control 2. status word control **3. control word register** 4. read logic control
An index is clustered, if	**1. The data records of the file are organized in the same order as the data entries of the index** 2. The data records of the file are organized not in the same order as the data entries of the index 3. It is on a set of fields that form a candidate key 4. It is on a set of fields that include the primary key
An Internet Service Provider (ISP) has the following chunk of CIDR-based IP addresses available with it: 245.248.128.0/20. The ISP wants to give half of this chunk of addresses to Organization A, and a quarter to Organization B, while retaining the remaining with itself. Which of the following is a valid allocation of address to A and B?	1. 245.248.128.0/21 and 245.248.128.0/22 2. 245.248.132.0/22 and 245.248.132.0/21 3. 245.248.136.0/24 and 245.248.132.0/21 **4. 245.248.136.0/21 and 245.248.128.0/22**
An optimal scheduling algorithm in terms of minimizing the average waiting time of a given set of processes is _____.	1. None of these 2. Round robin scheduling algorithm 3. FCFS scheduling algorithm **4. Shortest job - first scheduling algorithm**

Assume a relation ACCOUNT (acno, balance, type, branch, last_accessed) with 1 million records. If a SQL query "SELECT balance FROM account WHERE balance>5000" would produce 800000 records, which one of the following is the optimized version of relational algebra expressions that is equivalent to the given SQL query?	1.σbalance (πbalance>5000 (account)) 2.πbalance (σbalance<5000 (account)) 3.πbalance>5000 (σbalance (account)) **4.σbalance>5000 (πbalance (account))**
Assume a relation R with keys X, Y and Z, where X, Y, and Z are sets of one or more attributes. Also assume that Y is a subset or equal to X and Z is a subset of X and Y. Which of the following is true for this case?	1. X and Y are candidate keys of R **2. Y and Z are the candidate keys of R** 3. X is the only candidate key of R 4. Z is the only candidate key of R
Assume a table Employee (Eno, Ename, Dept, Salary, Phone) with 10000 records. **Also assume that Employee has a non-clustering index on Salary, clustering indexes on Dept and Phone. If there is a SQL query "SELECT Eno FROM Employee WHERE Salary/12 = 10000", which of the following will happen during query execution?**	1. Query will use index of Dept 2. Query will use index of Phone **3. Query will use index of Salary** 4. Query will not use index
Assume that a mergesort algorithm in the worst case takes 30 second for an input of size 64. Which of the following most closely approximates the maximum input size of a problem that can be solved in 6 minutes?	1. 43 2. 43 3. 256 **4. 512**
ATM uses a ____ packet size	1. 48 byte **2. Fixed 53 byte** 3. Randomized 4. Taken care by TCP fragmentation
Buffering is useful because	**1. It allows devices and thee CPU to operate asynchronously** 2. It makes it seem like there's more memory in the computer 3. It allows all device drivers to use the same code 4. It reduces the number of memory copies required

Changing the conceptual schema without having to change the external schema is called as _____	1.physical data independence **2. logical data independence** 3. data model 4. relational model
Choose the correct HTML tag to make a text italic	1<ii> 2.<italics> 3. <italic> **4. <i>**
Class D in network is used for	**1. Internet multicast communication** 2. Organizations 3. Very large network 4. Reserved for future requirements
Commit, Savepoint, Rollback are ___	1. DDL 2. DCL 3. DML **4. TCL**
Congestion control and quality of service is qualities of the	1. Frame Relay **2. ATM** 3. DH 4. SONET
Consider a 4-way set associative cache (initially empty) with total 16 cache blocks. The main memory consists of 256 blocks and the request for memory blocks is in the following order: 0, 255, 1, 4, 3, 8, 133, 159, 216, 129, 63, 8, 48, 32, 73, 92, 155 Which one of the following memory block will NOT be in cache if LRU replacement policy is used?	1. 8 **2. 216** 3. 3 4. 129
Consider a disk queue with requests for I/O to blocks on cylinders 47, 38, 121, 191, 87, 11,92, 10. The C-LOOK scheduling algorithm is used. The head is initially at cylinder number 63, moving towards larger cylinder numbers on its servicing pass. The cylinders are numbered from 0 to 199. The total head movement (in number of cylinders) incurred while servicing these requests is	1. 324 2. 4819 **3. 165 (if not counting the reversing movement otherwise 346)** 4. 431
Consider a dynamic queue with two pointers: front and rear. What is the time needed to insert an element in a queue of length of n?	1. O(n log2n). **2. O(1).** 3. O(log2n) 4. O(n).
Consider a join (relation algebra operation) between relations r(R)and s(S) using the nested loop method. There are	1. Join selection factor between r(R) and s(S) is more than 0.5. **2. Relation r(R) is in the outer loop.**

3 buffers each of size equal to disk block size, out of which one buffer is reserved for intermediate results. Assuming size(r(R))	3. Relation s(S) is in the outer loop. 4. Join selection factor between r(R) and s(S) is less than 0.5.
Consider a relation R (A, B). If A ¿ B is a trivial functional dependency and A is the super key for R, then what is the maximum normal form R can be in?	1. 3NF 2. 2NF **3. BCNF** 4. 1NF
Consider a relation R (A, B, C, D, E) with set of functional dependencies F = {A¿BC, CD¿E, B¿D, E¿A}. Which of the following is one of the candidate keys of R?	1. ABC 2. B 3. ED **4. E**
Consider a relational table with the schema R (A, B, C). Assume that the cardinality of attribute A is 10, B is 20, and C is 5. What is the maximum number of records R can have without duplicate?	**1. 1000** 2. 100 3. 200 4. 35
Consider a system with 'M' CPU processors and 'N' processes then how many processes can be present in ready, running and blocked state at maximum	1. M, N, M 2. N, N+M, M 3. N, M, M **4. N, M, N**
Consider an arbitrary set of CPU-bound processes with unequal CPU burst lengths submitted at the same time to a computer system. Which one of the following process scheduling algorithms would minimize the average waiting time in the ready queue?	1. Uniform Random **2. Shortest remaining time first** 3. Priority based 4. Round Robin
Consider six memory partitions of sizes 200 KB, 400 KB, 600 KB, 500 KB, 300 KB and 250KB, where KB refers to kilobyte. These partitions need to be allotted to four processes of sizes 357 KB, 210KB, 468 KB and 491 KB in that order. If the best fit algorithm is used, which partitions are NOT allotted to any process?	**1. 200KB and 300 KB** 2. 300KB and 400 KB 3. 250KB and 300 KB 4. 200KB and 250 KB
Consider the C function given below. **int f(int j)**	1. The function prints the string something for all values of j.

{ **static int i = 50;** **int k;** **if (i == j)** **{** **printf(?something?);** **k = f(i);** **return 0;** **}** **else return 0;** **}** **Which one of the following is TRUE?**	2. The function returns 0 for all values of j. **3. The function will exhaust the runtime stack or run into an infinite loop when j = 50.** 4. The function returns 0 when j = 50.
Consider the following C function. **int fun (int n) {** **int x =1, k;** **if (n ==1) return x;** **for (k=1; k < n; ++k)** **x = x + fun (k)* fun (n - k); return x;** **}** **The return value of fun (5) is _____**	**1. 51** 2. 52 3. 53 4. 42
Consider the following C code segment: **int a, b, c = 0;** **void prtFun(void);** **main( )** **{ static int a = 1; /* Line 1 */** **prtFun( );** **a + = 1;** **prtFun( )** **printf(?\n %d %d ?, a, b);** **}** **void prtFun(void)** **{ static int a=2; /* Line 2 */** **int b=1;** **a+=++b;** **printf(?\n %d %d ?, a, b);** **}** **What output will be generated by the given code segment if:** **Line 1 is replaced by auto int a = 1;** **Line 2 is replaced by register int a = 2;**	1. 42 61 61 2. 31 41 42 **3. 42** **42** **20** 4. 42 62 20
Consider the following C program segment. **#include** **intmain()**	1. 1034 2. 23324 **3. 1204** 4. 12

{char sl [7]="1234";*p; **p=sl+2;** ***p='0';** **printf ("%s",sl)** **{** **What will be printed by the program?**	
Consider the following C program. **#include** **int f1 (void) ;** **int f 2 void ;** **int x 10;** **int main ()** **{** **int x=1;** **x+=f1()+ f2()+f3()+f2() ;** **printf("%d", x);** **return 0;** **}** **int f1(){int x=25; x++; return x;}** **int f2(){static int x =50; x++;return x;}** **int f3(){x*=10; return x};** **The output of the program is_____.**	1. 434 2. 432 3. 43 **4. 230**
Consider the following four schedules due to three transactions (indicated by the subscript) using read and write on a data item x, denoted by r(x) and w(x) respectively. Which one of them is conflict serializable?	1. r3(x);r2(x);r1(x);w2(x);w1(x) 2. r1(x); r2(x); w1(x); r3(x); w2(x) **3. r2(x);w2(x);r3(x);r1(x);w1(x)** 4. r2(x);r1(x);w2(x);r3(x);w1(x)
Consider the following function written the C programming language. **void foo (char * a) {** **if (* a & & * a ! =' '){** **//Question incomplete here " foo(a+1)" should be here** **putchar (*a);** **}** **}}** **The output of the above function on input ?ABCD EFGH? is**	1. HGFE DCBA 2. ABCD **3. DCBA** 4. ABCD EFGH

Consider the following program in C language: **#include** **main()** **{** **int i;** **int *pi = &i;** **scanf(?%d?,pi);** **printf(?%d\n?, i+5);** **}** **Which one of the following statements is TRUE?**	1. **On execution, the value printed is 5 more than the integer value entered** 2. Execution results in a run-time error. 3. On execution, the value printed is 5 more than the address of variable i 4. Compilation fails.
Consider the following program: **int f(int *p, int n)** **{** **if (n <= 1) return 0;** **else return max (f (p+1, n-1),p[0]-p[1]);** **}** **int main()** **{** **int a[] = {3,5,2,6,4};** **printf("%d", f(a,5));** **}** **The value printed by this program is**	1. 1 2. 4 3. 2 4. **3**
Consider the following recursive C function. **Void get (int n)** **{if (n<1) return;** **get (n-1)** **get (n-3) ;** **printf ("%d",n);** **If get(6) function is being called in main () then how many times will the get() function be invoked before returning to the main ( ) ?**	1. 15 **2. 25** 3. 43 4. 24
Consider the following relation **Cinema (theater, address, capacity)** **Which of the following options will be needed at the end of the SQL query** **SELECT P1. address** **FROM Cinema P1** **Such that it always finds the addresses of theaters with maximum capacity?**	1. WHERE P1. Capacity> = All (select max(P2. Capacity) from Cinema P2) 2. WHERE P1. Capacity> = Any (select max (P2. Capacity) from Cinema P2) **3. WHERE P1. Capacity> = All (select P2. Capacity from Cinema P2)** 4. WHERE P1. Capacity> = Any (select P2. Capacity from Cinema P2)

Consider the following transaction involving two bank account x and y. **read (x) ; x : = x ? 50; write (x) ; read (y); y : = y + 50 ; write (y)** **The constraint that the sum of the accounts x and y should remain constant is that of**	**1. Consistency** 2. Isolation 3. Durability 4. Atomicity
Consider the function func shown below: **int func(int num) {** **int count = 0;** **while (num) {** **count++;** **num>>= 1;** **}** **return (count);** **}** **The value returned by func(435)is**	**1. 9** 2. 0 3. 7 4. 8
Consider the tree arcs of a BFS traversal from a source node W in an unweighted, connected, undirected graph. The tree T formed by the tree arcs is a data structure for computing	1. The shortest paths from W to only those nodes that are leaves of T. 2. The shortest path between every pair of vertices. **3. The shortest path from W to every vertex in the graph.** 4. The longest path in the graph.
Consider the virtual page reference string 1,2,3,2,4,1,3,2,4,1 on a demand paged virtual memory system running on a computer system that has main memory size of 3 page frames which are initially empty. Let LRU, FIFO and OPTIMAL denote the number of page faults under the corresponding page replacement policy. Then	**1. OPTIMAL < FIFO < LRU** 2. OPTIMAL = FIFO 3. OPTIMAL < LRU < FIFO 4. OPTIMAL = LRU
Decimal digit in BCD can be represented by	1. 2 input lines 2. 1 input line **3. 4 input lines** 4. 3 input lines
Decoder is a	1. complex circuit **2. combinational circuit** 3. sequential circuit 4. gate
Design procedure of combinational circuit involves	1. 8 steps 2. 5 steps **3. 4 steps** 4. 6 steps
DMA is useful for the operations	**1. large and fast data transfers between memory and io devices**

	2. small data transfers between memory and cache 3. slow and small data trasfers between memory and io devices 4. fast and slow data transfers between memory and io devices
Eight minterms will be used for	**1. three variables** 2. six variables 3. five variables 4. four variables
Find the output of the following program? **#include** **using namespace std;** **void myFunction(int& x, int* y, int* z) {** **static int temp=1;** **temp += (temp + temp) - 1;** **x += *(y++ + *z)+ temp - ++temp;** ***y=x;** **x=temp;** ***z= x;** **cout<<x<<*y<<*z<<temp;** **}** **int main() {** **int i = 0;** **int j[] = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9};** **i=i++ - ++i;** **myFunction(i, j, &i);** **return 0;** **}</x<<*y<<*z<<temp;**	1. 3233 2. 3133 3. 3332 4. 3232
Find the output of the following program? **#include** **using namespace std;** **typedef int * IntPtr;** **int main()** **{** **IntPtr A, B, C;** **int D,E;** **A = new int(3);** **B = new int(6);** **C = new int(9);** **D = 10;**	1. 71020106 2. 10720107 3. 72010107 4. 62010206

E = 20; ***A = *B;** **B = &E;** **D = (*B)++;** ***C= (*A)++ * (*B)--;** **E= *C++ - *B--;** **cout<<*A<<*B<<*C<<d<<e;** **return 0;** **}</d<<e;**	
Flip-flops can be constructed with two	1. NOT gates **2. NAND gates** 3. OR gates 4. EXNOR gates
For a C program accessing X[i][j][k], the following intermediate code is generated by a compiler. Assume that the size of an integer is 32 bits and the size of a character is 8 bits. **t0 = i * 1024** **t1 = j * 32** **t2 = k * 4** **t3 = t1 + t0** **t4 = t3 + t2** **t5 = X[t4]** **Which one of the following statements about the source code for the C program is CORRECT?**	**1. X is declared as ?int X[32][32][8]?.** 2. X is declared as ?int X[4][1024][32]?. 3. X is declared as ?char X[4][32][8]?. 4. X is declared as ?char X[32][16][2]?.
For non-negative functions, f(n) and g(n), f(n) is theta of g(n) if and only if	**1. f(n) = omega(g(n)) and f(n) = O(g(n))** 2. f(n) = O(g(n)) and f(n) = o((g(n)) 3. f(n) = o(g(n)) and f(n) = omega(g(n)) 4. f(n) = O(g(n)) and f(n) = little_omega(g(n))
For the array (77 ,62,114,80,9,30,99), write the order of the elements after two passes using the Radix sort	1. 114 30 62 77 9 99 2. 9 30 62 77 80 99 114 **3. 9 114 30 62 77 80 99** 4. 80 30 62 114 77 9 99
For the IEEE 802.11 MAC protocol for wireless communication, which of the following statements is/are TRUE ? **I. At least three non-overlapping channels are available for transmissions.** **II. The RTS-CTS mechanism is used for collision detection.** **III.Unicast frames are ACKed.**	1. All I, II, and III 2. II only 3. II and III only **4. I and III only**

Foreign key is a subset of primary key is stated in ----------constraint	1. Domain Constraint 2. Foreign Key Constraint **3. Referential Integrity Constraint** 4. Semantic Constraint
General Purpose Software which creates and manipulates database is	1. NFS **2. DBMS** 3. GIS 4. MIS
Generally Dynamic RAM is used as main memory in a computer system as it_____.	1. Consumes less power 2. Needs refreshing circuitry 3. Has lower cell density **4. Has higher speed**
Given memory partitions of 100K, 500K, 200K, 300K, and 600K (in order), how would each of the First-fit, Best-fit, and Worst-fit algorithms place processes of 212K, 417K, 112K, and 426K (in order)? Which algorithm makes the most efficient use of memory?	1. All the three provides the same efficiency **2. Best –fit** 3. Worst –fit 4. First- fit
Given the basic ER and relational models, which of the following is INCORRECT?	1. In a row of a relational table, an attribute can have exactly one value or a NULL value 2. An attribute of an entity can be composite 3. An attribute of an entity can have more than one value **4. In a row of a relational table, an attribute can have more than one value**
Given the code **String s1 = ? VIT? ;** **String s2 = ? VIT ? ;** **String s3 = new String (s1);** **Which of the following would equate to true?**	1. s3 == s1 **2. s1 == s2** 3. s3=s1 4. s1 = s2
Given the following schema:employees(emp-id, first-name, last-name, hire-date,dept-id, salary)departments(dept-id, dept-name, manager-id, location-id) **You want to display the last names and hire dates of all latest hires in their respective departments in the location ID 1700. You issue the following query:SQL>SELECT last-name, hire-date FROM employees**	1. It generates an error because the GROUP BY clause cannot be used with table joins in a subquery **2. It executes and gives the correct result** 3. It generates an error because of pairwise comparison 4. It executes but does not give the correct result.

WHERE (dept-id, hire-date) IN (SELECT dept-id, MAX(hire-date) FROM employees JOIN departments USING(dept-id) WHERE location-id = 1700 GROUP BY dept-id); What is the outcome?	
Having clause in SQL occurs with	1. where **2. group by** 3. sort by 4. order by
How does servlet differ from CGI?	1. Easy to remember 2. Simple 3. Open source **4. Light weight Process**
How many address bits are needed to select all memory locations in the 16K × 1 RAM?	1. 16 2. 8 **3. 14** 4. 10
How many illegitimate states has synchronous mod-6 counter ?	1. 1 2. 6 3. 2 **4. 3**
How to create a Date object in ipt?	1. dateObjectName := new Date([parameters]) 2. dateObjectName Date([parameters]) 3. dateObjectName.new Date([parameters]) **4. dateObjectName = new Date([parameters])**
HTTP is implemented over	**1. TCP** 2. SMTP 3. POP 4. UDP
Identify the sorting technique that supports divide and conquer strategy and has (n2) complexity in worst case	**1. Quick** 2. Merge 3. Insertion 4. Shell
If a virtual memory system has 4 pages in real memory and the rest must be swapped to disk. Which of the following is the hit ratio for the following page address stream. Assume memory starts empty, use the FIFO algorithm	**1. 31%** 2. 25% 3. 15% 4. 10%
If CurrNode pointer points to the previous node in the list and NewNode points to the newly created Node, the address assignments to be done for inserting a node in the middle of a singly linked list is	1. CurrNode->Next = NewNode->Next; NewNode->Next = CurrNode; 2. CurrNode = NewNode **3. NewNode->Next = CurrNode->Next; CurrNode->Next = NewNode;** 4. CurrNode->Next = NewNode; NewNode->Next = CurrNode->Next

If every node u in G adjacent to every other node v in G, A graph is said to be	1. strongly connected 2. complete 3. isolated 4. finite
If the associativity of a processor cache is doubled while keeping the capacity and block size unchanged, which one of the following is guaranteed to be NOT affected?	1. Width of way selection multiplexer 2. Width of tag comparator 3. Width of set index decoder 4. Width of processor to main memory data bus
If the directive session.cookie_lifetime is set to 3600, the cookie will live until..	1. the browser is restarted 2. 3600 min 3. 3600 hrs 4. 3600 sec
If the Disk head is located initially at 32, find the number of disk moves required with FCFS if the disk queue of I/O blocks requests are 98,37,14,124,65,67.	1. 324 2. 315 **3. 321** 4. 310
If the main memory is of 8K bytes and the cache memory is of 2K words. It uses associative mapping. Then each word of cache memory shall be_____.	1. 21 bits 2. 16 bits 3. 11 bits 4. 20 bits
If the offset of the operand is stored in one of the index registers, then it is	1. based indexed addressing mode **2. indexed addressing mode** 3. relative based indexed addressing mode 4. based addressing
If two interrupts, one of higher priority and other of lower priority occur simultaneously, then the service provided is for	**1. interrupt of higher priority** 2. both the interrupts 3. none of the mentioned 4. interrupt of lower priority
If you don't want the frame windows to be resizeable, simply add what to the lines ?	1. dontresize 2. Delete **3. noresize** 4. save
If a , b , c, are three nodes connected in sequence in a singly linked list, what is the statement to be added to change this into a circular linked list?	1. a->next=b **2. c->next=a** 3. all 4. b->next=c

In 8257 register format, the selected channel is disabled after the terminal count condition is reached when	1. auto load is set **2. TC STOP bit is reset** 3. TC STOP bit is set 4. auto load is reset
In a digital counter circuit feedback loop is introduced to	1. Asynchronous input and output pulses **2. Reduce the number of input pulses to reset the counter** 3. Improve stability 4. Improve distortion
In Binary trees nodes with no successor are called	1. End nodes **2. Terminal nodes** 3. Final nodes 4. Last nodes
In control word register, if SC1=0 and SC0=1, then the counter selected is	1. counter 2 **2. counter 1** 3. counter 0 4. counter 3
In design procedure input output values are assigned with	1. 1's **2. Letter Symbols** 3. Numeric Symbols 4. 0's
In DMA transfers, the required signals and addresses are given by the_____	1. Processor **2. DMA controllers** 3. Device drivers 4. The program itself
In dynamic routing mechanism the route changes in response to _____	1. fragmentation size 2. sequence order 3. time **4. link cost changes**
In HTTP, which method gets the resource as specified in the URI	1. POST 2. PUT 3. TRACE **4. GET**
In Multi-Processing Operating Systems:	1. Maximum throughput is achieved 2. Not suitable for Real Time Applications 3. Maximum security can be achieved **4. Maximum utilization of CPU can be achieved**
In priority scheduling algorithm, when a process arrives at the ready queue, its priority is compared with the priority of	1. parent process 2. init process **3. currently running process** 4. all process
In real time Operating System, which of the following is the most suitable scheduling scheme?	1. Random **2. Round Robin** 3. FCFS 4. Scan

In RMI Architecture which layer Intercepts method calls made by the client/redirects these calls to a remote RMI service?	**1. Stub & Skeleton Layer** 2. Application Layer 3. Transport Layer 4. Remote Reference Layer
In the blocked state	1. the processes waiting for the processor are found 2. the process which is running is found **3. the processes waiting for I/O are found** 4. the process ready to execute
In the IPv4 addressing format, the number of networks allowed under Class C addresses is	1. 2^14 **2. 2^21** 3. 2^24 4. 2^7
In the running state	1. all the processes waiting for I/O to be completed are found 2. **only the process which has control of the processor is found** 3.all the processes in the job queue are found 4. all the processes waiting for the processor are found
In which addressing mode the operand is given explicitly in the instruction	**1. Immediate.** 2. Direct. 3. Absolute 4. Indirect.
In which category does the discrepancy between duplicate records belong?	1. Invalid **2. Inconsistent** 3. Incomplete 4. Noisy
JAVA PROGRAMMING **Java package is a grouping mechanism with the purpose of**	1. Replacing header file used in C/C++ **2. Controlling the visibility of the classes, interfaces and methods** 3. Providing the library for the Java program 4. An application framework
KDD (Knowledge Discovery in Databases) is referred to,	1. collection of interesting and useful patterns in a database 2. data fusion **3. Non-trivial extraction of previously unknown useful information from data** 4. data extraction
Let R be the relation on the set of positive integers such that a aRb if and only if a and b are distinct and have a common divisor other than 1. Which one of the following statements about R is true?	**1. R is symmetric but not reflexive and not transitive** 2. R is transitive but not reflexive and not symmetric 3. R is reflexive but not symmetric and not transitive 4. R is symmetric and reflexive but not transitive
Let S and Q be two semaphores initialized to 1, where P0 and P1 processes the	1. Semaphore 2. Signal

following statements wait(S);wait(Q); ---; signal(S);signal(Q) and wait(Q); wait(S);---;signal(Q);signal(S); respectively. The above situation depicts a _____.	**3. Deadlock** 4. Interrupt
Let the size of congestion window of a TCP connection be 32 KB when a timeout occurs. The round trip time of the connection is 100 msec and the maximum segment size used is 2 KB. The time taken (in msec) by the TCP connection to get back to 32 KB congestion window is	1. 1200 2. 2221 **3. 1100** 4. 1300
Mac Operating system is developed by which company	1. IBM **2. Apple** 3. Samsung 4. Microsoft
Microsoft SQL Server is an example for which OLAP Server?	1. Hybrid OLAP 2. Relational OLAP 3. Two-dimensional OLAP **4. Multi-dimensional OLAP**
Minimal super key of a relation is called _____.	**1. Primary Key** 2. Super Key 3. Foreign Key 4. Alternate key
Minimum number of moves required to solve a Tower of Hanoi puzzle is	1. 2 n^ 2 **2. 2^ n - 1** 3. 2n ^ 1 4. 2^ n+1
Minterms are arranged in map in a sequence of	**1. gray code** 2. BCD code 3. binary sequence 4. binary variables
Mod-6 and mod-12 counters are most commonly used in	1. frequency counters 2. multiplexed displays 3. power consumption meters **4. digital clocks**
Mutual exclusion problem occurs between	1. None of these 2. Processes that do not use the same resource **3. Processes that share resources** 4. two disjoint processes that do not interact

NOP instruction introduces	**1. delay** 2. address 3. memory location 4. data
On simple paging system with 224 bytes of physical memory, 256 pages of logical address space, and a page size 210 bytes, how many bytes are in a page frame?	1. 256 bytes **2. 210 bytes** 3. 224 bytes 4. none
One operation that is not given by magnitude comparator	**1. addition** 2. greater 3. equal 4. less
One that is not type of flipflop is	1. RS **2. ST** 3. T 4. JK
Operating System **1. Assume that ?C? is a Counting Semaphore initialized to value ?10?. Consider the following program segment: P(C); V(C); P(C); P(C); P(C); V(C); V(C) V(C); V(C); V(C); P(C); V(C); V(C); P(C) What is the value of C?**	**1. 12** 2. 6 3. 8 4. 10
Partial Degree of multiprogramming is controlled by	1. Depends on number of CPU's 2. Short term scheduler **3. Long term scheduler** 4. Medium term scheduler
public class MyRunnable implements Runnable **{** **public void run()** **{** **// some code here** **}** **}** **which of these will create and start this thread?**	1. **new Thread(new MyRunnable()).start();** 2. new MyRunnable().start(); 3. new Runnable(MyRunnable).start(); 4. new Thread(MyRunnable).run();
R has n tuples and S has m tuples, then the Cartesian product of R and S will produce _____ tuples.	1. n-m 2. n / m **3. n*m** 4. n+m
R left outer join S on a=b gives	1. Rows from R and S where a=b **2. All rows from R and joined rows from S** 3. All rows from R and S

	4. All rows from S and joined rows from R
RAID is a way to:	**1. Increase hard drive reliability and performance** 2. Increase hard drive latency and performance 3. Increase hard drive performance and decrease cost 4. Increase hard drive reliability and decrease cost
Round robin scheduling is essentially the preemptive version of _____	1. Longest time first **2. FIFO** 3. Shortest job first 4. Shortest remaining
Routine is not loaded until it is called. All routines are kept on disk in a relocatable load format. The main program is loaded into memory & is executed. This type of loading is called _____	1. Static loading 2. Dynamic loading 3. Overlays **4. Dynamic linking**
RS flip-flops are also called	1. TS Latch **2. SR Latch** 3. RS Latch 4. ST Latch
Shift registers are used for	1. Rotating **2. Both a and b** 3. Shifting 4. Adding
Simplified form of the boolean expression (X + Y + XY) (X + Z) is	1. XY + YZ 2. **X + YZ** 3. X + Y + Z 4. XZ + Y
SQl allows duplicates tuples in relations, and correspondingly defines the multiplicity of tuples in the result of joins. Which one of the following queries always gives the same answer as the nested query shown below: **select * from R where a in (select S.a from S)**	1. Select distinct R.* from R,S where R.a=S.a 2. select R.* from R,S where R.a=S.a and is unique R 3. Select R.* from R, S where R.a=S.a **4. Select R.* from R,(select distinct a from S) as S1 where R.a=S1.a**
Supervisor call	1. Is a call made by the supervisor of the system 2. Is a call made by someone working in root director **3. Are privileged calls that are used to perform resource management functions,** **which are controlled by the operating systems** 4. Is a call with control functions

Suppose T is a binary tree with 14 nodes. What is the minimum possible depth of T?	1. 5 **2. 3** 3. 0 4. 4
Switching the CPU to another Process requires saving state of the old process and loading new process state is called as _____.	**1. Context Switch** 2. Process Blocking 3. Time Sharing 4.CPU Sharing
System calls:	1. Often change dramatically between different releases of an operating system 2. Provide a rich and flexible API for software developers 3. Allow the operating system to optimize performance **4. Protect kernel data structures from user code**
Table that is not a part of asynchronous analysis procedure	1. flow table 2. transition table 3. state table **4. excitation table**
table {color: blue;} With the above code snippet in use, what happens to a table?	1. **The text inside the table would be colored blue.** 2. The header row of the table would be colored blue. 3. The table background would be colored blue. 4. The table border would be colored blue.
TCP manages a point-to-point and _____ connection for an application between two computers	1. half duplex 2. simple **3. full-duplex** 4. multi point
temp=root->left; **while(temp->right!=NULL)** **temp=temp->right;** **return temp;** **The above code snippet for a BST with the address of the root node in pointer 'root' returns**	1. **Inorder successor of the root** 2. Inorder predecessor of the root 3. Maximum element in the right subtree of root 4. Minimum element in the right subtree of root
The 16 bit flag of 8086 microprocessor is responsible to indicate ----------	1. the result of subtraction 2. the result of addition 3. the condition of memory **4. the condition of result of ALU operation**

The 16-bit 2?s complement representation of an integer is 1111 1111 1111 0101, its decimal representation is	1. 2 **2. -11** 3. 3 4. 1
The _____ is generally used to group hosts based on the physical network topology.	**1. Subnet ID** 2. NET ID 3. Host ID 4. Netmask
The _____ translates a byte from one code to another code	1. POP 2. XCHNG 3. **XLAT** 4. PUSH
The addressing mode used in an instruction of the form ADD R1, R2 is _____.	1. Index 2. Absolute 3. Indirect 4**. Register**
The amount of time required to read a block of data from a disk into memory is composed of seek time, rotational latency, and transfer time. Rotational latency refers to _____.	1. the time it takes for the read-write head to move into position over the appropriate track 2. the time its takes for the platter to make a full rotation **3. the time it takes for the platter to rotate the correct sector under the head** 4. the time its takes for the platter to make a half rotation
The average time required to reach a storage location in memory and obtain its contents is called the	1. seek time 2. turnaround time 3. **access time** 4. transfer time
The best index for exact match query is	1. **B Tree** 2. Quad tree 3. Binary Tree 4. Bucket Hash
The best way to retrieve todays date in DBMS is	1. echo sysdate 2. select sysdate from emp **3. sysdate** 4. select sysdate from dual
The cartesian product ,followed by select is equivalent to	1. Project 2. Query **3. Join** 4. Union
The collection of processes on the disk that is waiting to be brought into memory for execution forms the _____	1. **Input queue** 2. Ready queue 3. Priority queue 4. Device queue
The common register(s) for all the four channels of 8257 are	1. **mode set register and status register** 2. terminal count register 3. address register 4. DMA address register

The constraint ?primary key cannot be null? is called as?	1. **Entity Integrity** 2. Primary key 3. Key 4. Referential integrity
The counter starts counting only if	1. CLK signal is low 2**. GATE signal is high** 3. GATE signal is low 4. CLK signal is high
The data bus buffer is controlled by	1. **read/write control logic** 2. control word register 3. address bus 4. data bus
The data manipulation language used in SQL is a, **(I) Procedural DML** **(II) Non-Procedural DML** **(III) Modification DML** **(IV) Declarative DML**	1**. I and IV only** 2. I and II only 3. III and IV only 4. II and IV only
The data type describing the types of values that can appear in each column is called _____.	1. **Domain** 2. Attribute 3. Relation 4. Tuple
The degree of a leaf node is:	1. -1 2. 1 3. **0** 4. 2
The DMA controller has _____ registers	1. 1 2. 4 3. **3** 4. 2
The embedded c program is converted by cross compiler to	1. the machine code corresponding to the processor of the PC used for application development 2. the machine code corresponding to a processor which is different from the processor of the PC used for application development 3. the machine code for all the microcontrollers 4. assemble code of the PC used for application development
The following function computes the maximum value contained in an integer array **p[ ] of size n (n >= 1).** **int max(int *p, int n) {** **int a=0, b=n-1;** **while (_____) {** **if (p[a] <= p[b]) { a = a+1; }** **else { b = b-1; }** **}** **return p[a];**	1. b != 0 2. **b != a** 3. b > (a + 1) 4. a != n

} The missing loop condition is	
The following HTML attribute is used to specify the URL of the html document to be opened when a hyperlink is clicked.	1. PATH 2. **HREF** 3. LINK 4. SRC
The following query is called as ? select * from emp where ssn in (select dssn from dependent order by age desc) ?;	1**. Nested Query** 2. Ordered query 3. Top N Query 4. Pseudo column query
The HTTP response message leaves out the requested object when _____ method is used	1. GET 2**. HEAD** 3. PUT 4. POST
The load instruction is mostly used to designate a transfer from memory to a processor register known as	1. Instruction Register 2. Program counter 3. **Accumulator** 4. Memory address Register
The main difference between JK and RS flip-flop is that	1. JK flip flop needs a clock pulse 2. JK flip-flop is acronym of Junction cathode multivibrator 3. **JK flip-flop accepts both inputs as 1** 4. There is a feedback in JK lip-lop
The main function of dispatcher is:	1. swapping a process to disk 2. **assigning ready process to the CPU** 3. bring processes from the disk to main memory 4. suspending some of the processes when CPU load is high
The master slave JK lip-flop is effectively a combination of	1. **A SR flip-flop and a T flip-flop** 2. An SR flip-flop and a D flip-flop 3. A T flip-flop and a D flip-flop
The mechanism that bring a page into memory only when it is needed is called _____	1. Page Replacement 2. **Demand Paging** 3. Segmentation 4. Fragmentation
The minimum duration of the active low interrupt pulse for being sensed without being lost must be	1. equal to 2 machine cycles 2. Greater than one machine cycle 3. Greater than 2 machine cycles 4. **Equal to one machine cycle**
The minimum number of JK flip-flops required to construct a synchronous	1. 4 2. 2

counter with the count sequence (0,0, 1, 1, 2, 2, 3, 3, 0, 0,??.) is	3. **3** 4. 1
The minimum number of NAND gates required to implement the Boolean function. A + AB' + AB'C is equal to	1. 1 2. **Zero** 3. 7 4. 4
The number of counters that are present in the programmable timer device 8254 is	1. 4 2. **3** 3. 2 4. 1
The number of min-terms after minimizing the following Boolean expression is _____. [D'+AB'+A'C+AC'D+A'C'D]'	1. **1** 2. 2 3. 3 4. 4
The operating system of a computer serves as a software interface between the user and the _____.	1. **Hardware** 2. Peripheral 3. Memory 4. Screen
The OS of a computer may periodically collect all the free memory space to form contiguous block of free space. This is called	1. Dynamic Memory Allocation 2. Concatenation 3. **Garbage collection** 4. Collision
The part of the operating system that coordinates the activities of other program is called the	1. File manager 2. command processor 3. **Input/output manager** 4. Supervisor
The performance of cache memory is frequently measured in terms of a quantity called	1. average ratio 2. miss ratio 3. **hit ratio** 4. ratio
The post order traversal of binary tree is DEBFCA. Find out the pre order traversal.	1. ABDCEF 2. **ABDECF** 3. ADBFEC 4. ABFCDE
c	1. 15,10,25,23,20,42,35,39,30 2. 10,20,15,23,25,35,42,39,30 3. 15,20,10,23,25,42,35,39,30 4. **15,10,23,25,20,35,42,39,30**

The problem of thrashing is effected scientifically by _____.	1. Primary storage size 2. Program size **3. Program structure** 4. Secondary storgae
The process related to process control, file management, device management, information about system and communication that is requested by any higher level language can be performed by _____.	1. Caching 2. Editors **3. System Call** 4. Compilers
The protocol data unit (PDU) for the application layer in the Internet stack is	**1. Message** 2. Frame 3. Datagram 4. Segment
The purpose of a TLB is	1. To hold register values while a process is waiting to be run 2. To hold the start and length of the page table 3. To cache page translation information 4. To cache frequently used data
The query to print alternate records (i.e even numbered) from a table is	1. SELECT * FROM EMP WHERE ROWNUM=0DD **2. SELECT * FROM EMP WHERE ROWID IN (SELECT DECODE (MOD (ROWNUM,2),0,ROWID,NULL) FROM EMP** 3. SELECT * FROM EMP WHERE ROWID IN (SELECT DECODE (MOD (ROWNUM,2),0,NULL,ROWID) FROM EMP 4. SELECT * FROM EMP WHERE ROWNUM=EVEN
The recurrence relation capturing the optimal execution time of the Towers of Hanoi problem with n discs is	**1. T(n)=2T(n-1)+1** 2. T(n) = 2T(n-2)+2 3. T(n)=2T(n-1)+n 4. T(n)=2T(n/2)+1
The relation R={A,B,C,D,E,F} with FD A,B-> C, C-> D, C->E,F holds	1. MVD 2. Transitive dependency 3. Join dependency 4. Partial dependency
The run time of the following algorithm is **Procedure A(n)** **If(n<=2) return(1)** **Else return(A(sqrt(n))**	1. O(n) 2. O(logn) **3. O(loglogn)** 4. O(1)
The servlet life cycle has the following cycle.	1. Service destroy **2. Init service destroy** 3. Init service 4. Init destroy service
The sign magnitude representation of binary number + 1101.011 is	**1. 11101.011** 2. 00110.100 3. 10010.100 4. 01101.011

The size of the data count register of a DMA controller is 16 bits. The processor needs to transfer a file of 29,154 kilobytes from disk to main memory. The memory is byte addressable. The minimum number of times the DMA controller needs to get the control of the system bus from the processor to transfer the file from the disk to main memory is	1. 455 2. 457 **3. 456** 4. 454
The smallest integer than can be represented by an 8-bit number in 2's complement form is?	1. -256 2. -127 3. 1 **4. -128**
The Snapshot of a table is called as	1. Schema construct 2. Extension 3. Intension **4. State**
The solution to Critical Section Problem is : Mutual Exclusion, Progress and Bounded Waiting.	1. The statement is partially valid **2. The statement is true.** 3. The statement is false 4. The statement is contradictory.
The stage delays in a 4-stage pipeline are 800, 500, 400 and 300 picoseconds. The first stage (with delay 800 picoseconds) is replaced with a functionally equivalent design involving two stages with respective delays 600 and 350 picoseconds. The throughput increase of the pipeline is percent.	1. 34 2. 32 3. 35 **4. 33**
The technique, for sharing the time of a computer among several jobs, which switches jobs so rapidly such that each job appears to have the computer to itself, is called	1. Time out 2. Multitasking 3. Time domain **4. Time Sharing**
The term P in semaphores means----------	1. Mutual exclusion **2. wait** 3. Lock 4. signal
The Third stage in designing a database is when we analyze our tables more closely and create a _____ between tables.	**1. Relationship** 2. Query 3. Join 4.structure
The truth table **X Y f(X,Y)** **0 0 0**	1. X'Y' 2. X+Y 3. Y

0 1 0 **1 0 1** **1 1 1** **represents the Boolean function**	**4. X**
This Key Uniquely Identifies Each Record	**1. Primary Key** 2. Key Record 3. Field Name 4. Unique Key
Three concurrent processes X, Y, and Z execute three different code segments that access and update certain shared variables. Process X executes the P operation (i.e., wait) on semaphores a, b and c; Process Y executes the P operation on semaphores b, c and d; Process Z executes the P operation on semaphores c, d, and a before entering the respective code segments. After completing the execution of its code segment, each process invokes the V operation (i.e., signal) on its three semaphores. All semaphores are binary semaphores initialized to one. Which one of the following represents a deadlock-free order of invoking the P operations by the processes?	**1. X:P(b)P(a)P(c)** **Y:P(b)P(c)P(d)** **Z:P(a)P(c)P(d)** 2. X:P(d)P(b)P(c) Y:P(b)P(c)P(a) Z:P(c)P(d)P(b) 3. X:P(a)P(b)P(c) Y:P(b)P(c)P(d) Z:P(c)P(d)P(a) 4. X:P(b)P(a)P(c) Y:P(b)P(a)P(d) Z:P(c)P(c)P(a)
To build a mod-19 counter the number of flip-flops required is	1. 3 **2. 5** 3. 7 4. 9
To prevent any method from overriding, the method has to declared as,	**1. final** 2. extends 3. const 4. static
Two variables will be represented by	1. six minterms 2. eight minterms **3. four minterms** 4. five minterms
Update operation will violate	**1.unique constraint** 2. domain constraint 3. EIC 4. RIC
Use of _____ allows for some processes to be waiting on I/O while another process executes.	**1. multiprogramming** 2. multiuser interfacing 3. Random scheduling 4. Variable cpu cycles
Using 10's complement 72532- 3250 is	1. 69232 2. 69252 3. 69272 **4. 69282**

Virtual memory is _____.	1. An extremely large main memory 2. An extremely large secondary memory **3. An illusion of extremely large main memory** 4. A type of memory used in super computers.
We want to design a synchronous counter that counts the sequence 0-1-0-2-0-3 and then repeats. The minimum number of J-K flip-flops required to implement this counter is	1. 3 2. 1 **3. 4** 4. 2
What are the states of the Auxiliary Carry (AC) and Carry Flag (CF) after executing the following 8085 program? MVI H, 5DH; MIV L, 6BH; MOV A, H; ADD L	**1. AC=1 and CY=0** 2. AC=0 and CY=1 3. AC=0 and CY=0 4. AC=1 and CY=1
What does JSP stand for?	1.**Java Server Pages** 2.Java Scripting Pages 3.Java Service Pages 4.Java Script Program
What does the code snippet given below do? **void fun1(struct node* head)** **{** **if(head == NULL)** **return;** **fun1(head->next);** **printf("%d ", head->data);** **}**	1. Prints alternate nodes of Linked List in reverse order **2. Prints all nodes of linked lists in reverse order** 3. Prints all nodes of linked lists 4. Prints alternate nodes of Linked List
What does the following bit of JavaScript print out? **var a = [1,,3,4,5];** **console.log([a[4], a[1], a[5]]);**	1. 5, undefined,undefined 2. 5,3,undefined 3. 5,0,undefined 4. 5,null,undefined
What happens when you push a new node onto a stack?	1. The new node is placed at the middle of the linked list 2. The new node is placed at the back of the linked list **3. The new node is placed at the front of the linked list** 4. No Changes happens
What is a shell ?	1. It is a hardware component **2. It is a command interpreter**

	3. It is a part in compiler 4. It is a tool in CPU scheduling
What is the content of Stack Pointer (SP)?	**1. Address of the top element of the stack** 2. Address of the current instruction 3. Address of the next instruction 4. Size of the stack
What is the correct HTML for making a hyperlink?	**link **
What is the main difference between traps and interrupts?	1. Whether or not the scheduler is called 2. The kind of code that’s used to handle them **3. How they are initiated** 4. How the operating system returns from them
What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask?	**1. 30** 2. 15 3. 14 4. 40
What is the output of the following program? **#include** **using namespace std;** **int main()** **{** **int x=20;** **if(!(!x)&&x)** **cout<<x;** **else** **{** **x=10;** **cout<<x;** **return 0;** **}}</x;** **</x;**	1. **20** 2. 0 3. 1 4. 10
What is the postfix expression for the following infix expression? **Infix = a+b%c>d**	**1.abc%+d>** 2. abc%d>+ 3. ab+c%d> 4. abcd>%+
What is the return value of f(p,p) if the value of p is initialized to 5 before the call? Note that the first parameter is passed by	1. 161051 **2. 6561** 3. 55440 4. 3024

reference, whereas the second parameter is passed by value. **int f (int &x, int c) {** **c=c-1;** **if (c-0) return 1;** **x=x+1;** **return f (x,c)*x;}**	
What is the software that runs a computer, including scheduling tasks, managing storage, and handling communication with peripherals?	1. bluetooth technology 2. driver 3. application suite **4. operating system**
What is the unique characteristic of RAID 6 ?	1. Mirroring 2. Distributed Parity 3. Striping **4. Two independent distributed parity**
What technique is often used to prove the correctness of a recursive function?	1. Diagonalization **2. Mathematical induction** 3. Matrix Multiplication 4. Commutativity
What will be the output of the following C program? **void count(int n){** **static int d=1;** **printf("%d ", n);** **printf("%d ", d);** **d++;** **if(n>1) count(n-1);** **printf("%d ", d);** **}** **void main(){** **count(3);** **}**	1. 3 1 2 1 1 1 2 2 2 2. 3 1 2 2 1 3 4 3. 3 1 2 1 1 1 2 **4. 3 1 2 2 1 3 4 4 4**
When a program tries to access a page that is mapped in address space but not loaded in physical memory, then	1. no error occurs 2. segmentation fault occurs **3. page fault occurs** 4. fatal error occurs
When an instruction is read from the memory, it is called	1. Memory write cycle 2. Fetch cycle **3. Instruction cycle** 4. Memory Read cycle

When an inverter is placed between both inputs of an SR flip-flop, then resulting flip-lop is	1. Master slave JK flip-flop 2. SR flip-flop 3. JK flip-flop **4. D flip-flop**
When CPU is executing a Program that is part of the Operating System, it is said to be in	**1. System mode** 2. Simplex mode 3. Interrupt mode 4. Half mode
When process requests for a DMA transfer	1. Another process gets executed **2. Both a and c (point 1 and 4 are correct so, it should be" Both a and d")** 3. The process continues execution 4. Then the process is temporarily suspended
When several processes access the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place, is called	1. Dynamic condition 2. essential condition **3. race condition** 4. critical condition
When two or more processes trying to execute a set of instructions and if the output depends on the order of execution of the process, this is termed as:	1. Progress 2. Synchronization **3. Race condition** 4. Critical section
Where in an HTML document is the correct place to refer to an external style sheet?	**1. At the top of the document** 2. At the end of the document 3. In the section 4. In the section
Which algorithm chooses the page that has not been used for the longest period of time whenever the page required to be replaced?	**1. least recently used algorithm** 2. additional reference bit algorithm 3. first in first out algorithm 4. counting based page replacement algorithm
Which component of a database is used for sorting?	**1. field** 2. record 3. table 4. form
Which directory implementation is used in most Operating System?	1. Single level directory structure 2. Acyclic directory structure 3. Two level directory structure **4. Tree directory structure**
Which level of RAID refers to disk mirroring with block striping?	1. RAID level 2 2. RAID level 0 3. RAID level 3 **4. RAID level 1**

Which method is used to remove the first element of an Array object?	**1. shift()** 2. pop() 3. unshift() 4. push()
Which module gives control of the CPU to the process selected by the short-term scheduler?	1. long –term scheduler 2. short-term scheduler 3. interrupt **4. dispatcher**
Which of the following address modes calculate the effective address as address part of the instruction) + (content of CPU register)	1. Relative address Mode or Indexed address Mode **2. Indirect Address mode.** 3. none of these 4. Direct Address Mode
Which of the following are sufficient conditions for deadlock?	1. Non-Preemption (all options are correct, all are condition for deadlock) 2. Circular wait 3. M.E 4. Hold and wait
Which of the following are used to generate a message digest by the network security protocols? **(P) RSA (Q) SHA-1 (R) DES (S) MD5**	1. R and S only **2. Q and S only** 3. P and R only 4. Q and R only
Which of the following boolean expressions is not logically equivalent to all of the rest ?	1. bd' + c'd' + ab + cd 2. a (b + c) + cd 3. ab + ac + (cd)' **4. ab + (cd)' + cd + bd'**
Which of the following disk seek algorithms has the most variability in response time?	1. C-SCAN 2. SCAN **3. SSTF** 4. FCFS
Which of the following disk seek algorithms would be the best choice to implement in a system that services an average of 5 disk requests per second?	1. SSTF **2. FCFS** 3. SCAN 4. C-SCAN
Which of the following information is not part of Process Control Block? **(i) Process State** **(ii) Process Page table** **(iii) List of Open files** **(iv) Stack Pointer**	1. only 2 2. 3 & 4 **3. Only 3** 4. 2 and 4

Which of the following input controls that cannot be placed using tag?	1. Submit 2. Password 3. Text **4. Textarea**
Which of the following instructions should be allowed only in Kernel Mode?	**1. Disable all interrupts (multiple are correct click here)** 2. Read the time-of-day clock **3. Set the time-of-day clock** **4. Change the Memory Map**
Which of the following is a disadvantage of file processing system? **(I) Efficiency of high level programming,** **(II) Data Isolation** **(III) Integrity issues** **(IV) Storing of records as files**	1. I only 2. III only **3. II and III only** 4. II and IV only
Which of the following is example of in-place algorithm?	1. Insertion Sort**(1,2,4 are correct check here go down in the page)** 2.selection sort 3. Merge Sort 4. Bubble Sort
Which of the following is not a conversion function in SQL?	1. to_char( ) 2. to_number( ) **3. to_string( )** 4. to_date( )
Which of the following is not a data copy/transfer instruction?	1. POP 2. MOV **3. DAS** 4. PUSH
Which of the following is not a function of a DBA?	1. Table creation 2. Index creation 3. User creation **4. Application creation**
Which of the following is not a part of instruction cycle?	**1. Wait Phase** 2. Fetch phase 3. Decode phase 4. Execute phase
Which of the following is not a property of DBMS?	**1. concurrent access is not possible** 2. Authorized access 3. Redundancy control 4. Integrity check
Which of the following is not a stored procedure?	1. procedure 2. Date 3. function 4. trigger
Which of the following is NOT a superkey in a relational schema with attributes V,W,X,Y,Z and primary key V Y?	1. VWXY**(all options are correct)** 2. VWXYZ 3. VWYZ**(check here)** 4. VXYZ

Which of the following is not true of virtual memory?	**1. It allows more efficient use of memory** 2. It reduces the need for relocatable code 3. It requires hardware support 4. It requires the use of a disk or other secondary storage
Which of the following is not used for synchronization?	1. Busy waiting with test and set 2. Monitors **3. The banker's algorithm** 4. The bakery algorithm
Which of the following is not usually stored in a two-level page table?	**1. Virtual page number** 2. Physical page number 3. Reference bit 4. Dirty bit
Which of the following is shared between all of the threads in a process? Assume a kernel level thread implementation.	**1. File descriptors** 2. Scheduler priority 3. Local variables 4. Register values
Which of the following is/are example(s) of stateful application layer protocols? **(i)HTTP** **(ii)FTP** **(iii)TCP** **(iv)POP3**	1. (i) and (ii) only 2. (iv) only 3. (ii) and (iii) only **4. (ii) and (iv) only**
Which of the following logic expression is incorrect?	1. 1 ⊕ 1 ⊕ 1 = 1 2. 1 ⊕ 1 = 0 3. 1 ⊕ 0 = 1 **4. 1 ⊕ 1 ⊕ 0 =1**
Which of the following operator in SQL would produce the following result if applied between two relations Employee and Department? **Eno EName DeptNo DName** **111 Kumar 100 Sales** **222 Steve 200 Finance** **Null Null 300 Admn** **244 Meera 400 Mktg**	1. Projection Join 2. Natural Join **3. Outer Join** 4. Cartesian Join
Which of the following provides interface (UI) between user and OS	1. kernel 2. System call 3. Interrupt **4. Shell**
Which of the following RDBMS does not incorporate relational algebra	1. Oracle 2. DB2 3. MS SQL **4. QBE**

Which of the following statements is true ?	1. **(A + B) (A + C) = A + BC** 2. (A + B) (A + C) = AC + BC 3. (A + B) (A + C)= AC + B 4. (A + B) (A + C) = AB + C
Which of the following transport layer protocols is used to support electronic mail?	1. IP **2. SMTP** 3. UDP 4. TCP
Which of the following unit will choose to transform decimal number to binary code ?	1. Decoder **2. Encoder** 3. Multiplexer 4. Counter
Which of these interface abstractes the output of messages from httpd?	1. Httpdserver 2. httpdResponse 3. LogResponse **4. LogMessage**
Which of these is a stand alone tag?	**1. frame** 2. anchor 3. table 4. form
Which of these is asymptotically bigger?	**1. 6*2n** 2. 79n2+43n 3. 65n3+34n 4. none
Which of these is Server side technology?	**1. CGI** 2. CSS 3. HTML 4. Javascript
Which one of the following is NOT a part of the ACID properties of database transactions?	1. Atomicity **2. Deadlock** 3. Isolation 4. Consistency
Which one of the following statements is NOT correct about HTTP cookies?	**1. A cookie is a piece of code that has the potential to compromise the security of an internet user** 2. A cookie has an expiry date and time 3. A cookie gains entry to the user¿s work area through an HTTP header 4. Cookies can be used to track the browsing pattern of a user at a particular site
Which one of these is characteristic of RAID 5?	1. All parity in a single disk 2. No Parity 3. Double Parity **4. Distributed parity**

Which scheduling policy is most suitable for a time-shared operating system?	1. Elevator 2. First –come-first-serve **3. Round Robin** 4. Shortest Job First
Which standard TCP port is assigned for contacting SSH servers?	1. port 24 2. port 21 3. port 23 **4. port 22**
While inserting the elements 71,65,84,69,67,83 in an empty binary search tree (BST) in the sequence shown, the element in the lowest level is	1. 34 2. 78 3. 45 **4. 67**
With a single resource, deadlock occurs,	**1. None of these** 2. if there is a single process competing for that resource 3. if there are only two process completing for that resource 4. if there are more than two processes competing for that resource
X.25 Networks are _____ networks	1. Circuit switched 2. UDP **3. Packet switched** 4. Connectionless service
X=1010100 and Y=1000011 using 2's complement X-Y is	1. 10111 **2. 10001** 3. 101101 4. 10011
The <big> tag makes	1.**Text to uppercase** 2.**Text to bold** 3.**Text to be bigger than the surrounding text** 4.**Text to be strong**
Which of the following is the right syntax for assertion?	**1.Create assertion 'assertion-name' check 'predicate';** 2.Create assertion check 'predicate' 'assertion-name'; 3.Create assertions 'predicates'; 4.All of the mentioned
..... data type can store unstructured data	**1.RAW** 2.CHAR 3.NUMERIC 4.VARCHAR

..... command can be used to modify a column in a table	**1.alter** 2.update 3.set 4.create
…… is preferred method for enforcing data integrity	**1.Constraints** 2.Stored Procedure 3.Triggers 4.Cursors
A table can have only one	1.Secondary key 2.Alternate key 3.Unique key **4.Primary key**
Given the basic ER and relational models, which of the following is INCORRECT?	1.An attributes of an entity can have more that one value 2.An attribute of an entity can be composite **3.In a row of a relational table, an attribute can have more than one value** 4.In a row of a relational table, an attribute can have exactly one value or a NULL value
Select operation in SQL is equivalent to	1.the selection operation in relational algebra 2. the selection operation in relational algebra, except that select in SQL retains duplicates 3.the projection operation in relational algebra **4.the projection operation in relational algebra, except that select in SQL retains duplicates**
Which database level is closest to the users?	**1.External** 2.Internal 3.Physical 4.Conceptual
Which of the following is not a binary operator in relational algebra?	1.Join 2.Semi-Join 3.Assignment **4.Project**
Which of the following is TRUE?	1.Every relation in 2NF is also in BCNF 2.A relation R is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R **3.Every relation in BCNF is also in 3NF** 4.No relation can be in both BCNF and 3NF
Which of the following is/are not a DDL statements?	1.Create 2.Drop 3.Alter **4.delete**
Which one of the following statements if FALSE?	1.Any relation with two attributes is in BCNF 2.A relation in which every key has only one attribute is in 2NF 3.A prime attribute can be transitively dependent on a key in a 3NF relation **4.A prime attribute can be transitively dependent on a key in a BCNF relation**

DCL stands for	**1. Data Control Language** 2. Data Console Language 3. Data Console Level 4. Data Control Level
Grant and revoke are ..... statements	1. DDL 2. TCL **3. DCL** 4. DML
Let E1 and E2 be two entities in an E/R diagram with simple single-valued attributes. R1 and R2 are two relationships between E1 and E2, where R1 is one-to-many and R2 is many-to-many. R1 and R2 do not have any attributes of their own. What is the minimum number of tables required to represent this situation in the relational model?	1.2 **2. 3** 3. 4 4. 5
Which of the following is not true about segmented memory management?	1.Segment length must be a multiple of the page size 2.Segmentation allows multiple linear address space in one process 3.Segmentation can be used with paging to keep segments partially resident in memory 4.A segment can be read-only for one process and read-write for another
A typical hard drive has a peak throughput of about	1.2 x 105 bytes per second 2.2 x 106 bytes per second 3.2 x 107 bytes per second 4.2 x 108 bytes per second
In the process state transition diagram, the transition from the READY state to the RUNNING state indicates that:	1.A process was pre-empted by another process 2.A process has blocked for a semaphore or other operation **3.A process is done waiting for an I/O operation** 4.A process was just created
RAID is a way to:	1.Increase hard drive latency and performance 2.Increase hard drive performance and decrease cost **3.Increase hard drive reliability and performance** 4.Increase hard drive reliability and decrease cost
The main advantage of DMA is that it	1.Increases system performance by increasing concurrency 2.Allows the CPU to run faster 3.Reduces the traffic on the data bus 4.Removes the requirement that transfers be properly aligned

What is the main difference between traps and interrupts?	**1.How they are initiated** 2.The kind of code that's used to handle them 3.Whether or not the scheduler is called 4.How the operating system returns from them
Which of the following is not included in an inode in Linux?	1.File owner **2.File name** 3.File modification date 4.Pointer to the first data block
Which of these would not be a good way for the OS to improve battery lifetime in a laptop?	1.Shut down the hard drive until it's needed 2.Reduce the processor speed while it's idle **3.Turn off power to the memory** 4.Shut down the modem when it's not connected
The Normal form does not involve any dependencies.	1.1NF2.2NF 3.3NF 4.4NF
Attributes that are divisible are called	**1.composite** 2.simple 3.atomic 4.single
Entity types that do not have key attributes is	1. strong entity type **2.weak entity type** 3.key entity type 4.negative key attribute
One of the DDL command is	**1.rename** 2.update 3.insert 4.select
the collection of all entities of particular entity type in the database at any point in time is	1. Entity 2. Entity Type **3. Entity Set** 4. relation
The command which is used to change the structure of the table	1. Delete 2. Truncate **3. Alter** 4. update
the degree of a relationship type is	**1.no of participating entity types** 2. no of attributes 3. no of values in the relationship 4. no of transactions
Another name for total participation is	1. partial participation **2.** **existence dependency** 3. functional dependency 4. non dependency

No of entity type participate in recursive relationship are	1. three 2. two **3.** **one** 4. zero
The main property of normalization is	1. joining **2.** **decomposition** 3. adding 4. altering
Spurious tuples generation are avoided by	1. Cartesian product **2.** **join condition** 3. projection 4. filtering
In a relational schema, each tuple is divided into fields called	1.Queries **2.Domains** 3.Relations 4.All of these

#include
int main ()
{
static int a[]={10, 20, 30 40, 50};
static int *p[]= {a, a+3, a+4, a+1, a+2};
int **ptr=p;
ptr++;
printf ("%d%d", ptr p, **ptr);
}
The output of the program is _____.
	1.43 **2.140** 3.89 4.78

Which of the following sorting algorithms has the lowest worst-case complexity?	**1.** **Merge sort** 2. Bubble sort 3. Quick sort

	4. Selection sort
ICMP is primarily used for	**1.** **error and diagnostic functions** 2. addressing 3. forwarding 4. Networking
If a designer wants to design a point-to-point subnetwork with 10 routers of full duplex line, then total number of lines among them would be	1.10 2.20 3.45 **4.90**
If data rate of ring is 20 Mbps, signal propagation speed is 200 b/ms, then number of bits that can be placed on the channel of 200 km is	**1.20000 bit**s 2. 1000 bits 3. 10000 bits 4.2000 bits
Maximum data rate of a channel for a noiseless 3-kHz binary channel is	1.3000 bps **2.6000 bps** 3.4500 bps 4.1500 bps
Maximum data rate of a channel of 3000 Hz bandwidth and SNR of 30 dB is	1. 1,000 bps 2. 15,000 bps **3.** **30,000 bps** 4. 75,000 bps
Packet discard policy is implemented in	1.Physical layer 2.Data link layer 3.MAC layer **4.Network layer**
The maximum number of binary trees that can be formed with three unlabeled nodes is:	1. 1 **2.5** 3.4 4.3
Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?	1.CDMA **2. CSMA/CA** 3.ALOHA4.none of the mentioned

Which of the following command remove a relation from an SQL database	1. Delete **2.** **Drop table** 3. Remove 4. Purge
---------- is used to define internal schema	1. storage definition language 2. View definition language **3.** **Data Definition language** 4. Data Manipulation Language
---------- component of DBMS extracts DML commands from an application program written in a host programming language	1.DML Compiler 2.DDL Compiler 3.**Pre Compiler** 4.Query Optimizer
---------- is used to describe the structure and constraints for the whole database for a community of users hides the details of physical storage structures in three -schema architecture	1. system catalog 2. Internal Schema 3. External Schema 4. Conceptual schema
----------describes the the part of the database that a particular user group is interested in and hides the rest.	1. External Schema **2.** **Internal Schema** 3. Conceptual schema 4. System catalog
----------contains information such as the structure of each file, the type and storage	1.Database Schema **2.Database Catalog** 3.Data dictionary 4.Lock table

format of each data item, and various constraints on the data	
----------index has an entry for every search key value (and hence every record) in the data file	1.Sparse 2.cluster 3.**dense** 4.no indicies will have like that
----------is used to summarize information from multiple tuples into a single-tuple summary	**1.Aggregate function** 2.Joins 3.Division 4.cartesian product
-------involves finding the best line to fit two attributes so that one attribute is used to predict another attribute.	1.Outlier 2.Cluster **3.Regression** 4.Classifier
. For computers based on three - address instruction formats, each address field can be used to specify which of the following: S1: A memory operand S2: A processor register S3: An implied accumulator registers	**1.Either S1 or S2** 2.Only S2 and S3 3.Either S2 or S3 4.All of S1, S2 and S3
1. Among the following sorting techniques ,which has its time complexity as O(n) in the best-case?	1. Quick sort **2.** **Insertion sort** 3. Both 4. None
1. Among the following which is not the application of a stack?	1.Postponing data usage **2.Job scheduling** 3.Backtracking 4.none
1. Consider a dynamic queue with two pointers: front and rear. What is the time needed to insert an element in a queue of length of n?	1.O(log2n) 2.O(n). **3.O(1)** 4.O(n log2n).

1. For the array , (77 ,62,114,80,9,30,99), write the order of the elements after two passes using the Radix sort.	1.80 30 62 114 77 9 99 **2.114 30 62 77 9 99** 3.9 114 30 62 77 80 99 4.9 30 62 77 80 99 114
1. For the array , (77 ,62,14,80,9,30,99) , if Quick sort technique is followed,what will be the array status after placing the first pivot element in its appropriate place?	1.9 14 30 62 77 80 99 2.30 62 14 77 9 80 99 3.30 62 14 9 77 80 99 4.none
If a[] is the array containing the elements to be sorted using radix sort, during the second iteration in which the second Least Significant Digit is considered, row number in 2D array to which an element has to be stored is given by	1.a[i]/10%10 2.a[i]%10/10 3.a[i]%10 4.a[i]/100%10

1. If a , b , c, are three nodes connected in sequence in a singly linked list
struct node *temp=a;
while(temp!=NULL) {
temp=temp->next; printf("$"); }
Assuming 'c' to be the last node, the output is
	1.$$$
	2.$$
	3.NULL
	4.Error

1. Inorder and postorder traversal sequences of a binary tree are 45 50 55 65 70 75 80 85 90 and 45 55 65 50 75 90 85 80 70. What are its leaf nodes?	1.55 90 **2.45 55 90** 3.75 55 45 90 4.55 65 75 90
1. On adopting shell sort technique, the output of the array (21,62,14,9,30,77,80,25) after a pass with increment size =3, is	1.9 30 14 21 25 77 80 62 2.9 25 14 21 30 77 80 62 3.9 14 21 25 30 62 77 80 4.the same array
1. The preorder traversal of the AVL tree obtained by inserting 17,7,20,10,8 is	1.7 8 10 17 20 2.17 8 7 10 20 3.7 10 8 17 20 4.17 10 7 8 20

1. Which sorting technique uses a data structure similar to the one used in bucket hashing?	1.Quick 2.Merge 3.Heap **4.Radix**
1. While applying Quick sort technique for the array 5 4 3 8 12 6 10 1 7 9, if pivot =5, after the first traversal on both sides, 'l' and 'r' will be	1.1&9 2.3&7 3.7&3 4.9&1
1. Elements 7, 2, 8, 1, 4, 3, 5 are to be inserted in an AVL tree. After insertion and height balancing it, the root node will be	1.2 2.7 3.4 4.none
1. In a directed graph, the statement "if(adj[x][y]==1 && visited[y]==0)"	1. Checks if x is reachable from y and y has not yet been visited 2. Checks if y is reachable from x and x has not yet been visited 3. Checks if x is reachable from y and x has not yet been visited 4. Checks if y is reachable from x and y has not yet been visited
7. There are 'm' processes and 'n' instances of a Resource provided. Each process needs 'P' instances of the resource. In which case deadlock will never occur?	1.(P - 1) m + 1 = n 2.(P - 1) m + 1 < n 3.(P - 1) m = n + 1 4.(P - 1) m = n + 1
When a network interface has a failure in its circuitry, it sends a continuous stream of frames causing the Ethernet LAN to enter a Collapse state. This condition is known as _____.	1.Scattering 2. Blocking **3. Jabbering** 4.Refreshing

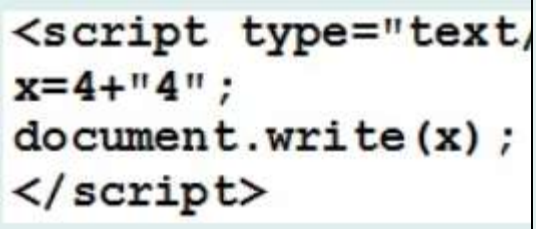
1. In a circular list with 5 nodes, let 'temp' point to the 4th node at present.
int i;
for(i=0;i<4;i++)
temp=temp->next;
The above code will make 'temp' point to
	1.5th node
	2.3rd node
	3.4th node itself
	4.error

1. A circularly linked list is used to represent a Queue. A single variable p is used to access the Queue. To which node	**1.rear** 2.front 3. not possible with single variable

should p point such that both the operations enQueue and deQueue can be performed in constant time?	4.node next to front
1. If a sequence of enque(1), enque (2), deque, enque (1), enque (2), deque, deque, deque, enque (2) operations are performed in a queue , the list of elements that would have been processed are	1.1,2,1,2,2 2.1,2,1,2 3.1,2,2,1,2 4.1,2,2,1
1. You are given pointer p that points to the last node in a circular list and another singly linked list whose first node is pointed to by 'head' and last node is pointed to by 'tail' has to be appended to the end of the circular list. Which of the following is correct?	1.p->next=head; tail->next=p; 2.p->next=head; tail->next=p->next; 3.tail->next=p->next; p->next=head; 4.tail->next=p; p->next=head;
A heap memory area is used to store the	**1.Local variables declared in the method** 2.Global variables 3. Memory of objects 4. Static variables

Consider the following code.
static void nPrint(String message, int n) {
while (n > 0) {
System.out.print(message);
n--;
}
}
What is the printout of the call nPrint('a', 4)?
	1.
	aaaaa
	2.
	aaaa
	3.
	aaa
	4.
	aa

1. What will be printed as the output of the following program?
public class testincr
{
public static void main(String args[])
{ int i = 0;
i = i++ + i;
	1.
	I = 0
	2.
	I = 1
	3.
	I = 2
	4.
	I = 3

System.out.println(" I = " +i); }}	
What is the output of following JavaScript code?  	1.8 2.4 **3.44** 4.Error
w do you put a message in the browser's status bar?	1.window.status("put your message here") 2. statusbar = "put your message here" 3.**window.status = "put your message here"** 4.status("put your message here")
What is the output of following JavaScript code?	1.2 2.12 3.11 4.13
Who invented the JavaScript programming language?	1.Tennis Ritchie 2.James Gosling 3.**Brendan Eich** 4.Mark crispin
1. If a sequence of push(1), push(2), pop,push(1),push(2),pop,pop,pop, push(2) pop operations are performed in a stack , the sequence of popped out values are	**1.2,2,1,1,2** 2.2,2,1,2,2 3.2,1,2,2,1 4.2,1,2,2,2
13. Which of the following line of code is suitable to start a thread ?	1.Thread t = new Thread(X); 2. Thread t = new Thread(this); t.start(); **3.X run = new X(); Thread t = new Thread(run); t.start();** 4.Thread t = new Thread(); x.run();

Consider the following code:
public class Test {
public static void main(String[] args) {
int[] x = new int[5];
int i;
for (i = 0; i < x.length; i++)
	1.The program displays 0 1 2 3 4
	2.The program displays 4
	3.The program has a runtime error because the last statement in the main method causes ArrayIndexOutOfBoundsException
	4.The program displays 1 2 3 4 5.

x[i] = i;
System.out.println(x[i]);
}
}	

What is the output of the following program:
public class testmeth
{
static int i = 1;
public static void main(String args[])
{
System.out.println(i+" , ");
m(i);
System.out.println(i);
}
public void m(int i)
{
i += 2;
}
}
	1.
	1 , 3
	2.
	3 , 1
	3.
	1 , 1
	4.
	Compile time error

Consider following code.
public class Test {
public static void main(String[] args) {
System.out.println(m(2));
}
public static int m(int num) {
return num;
}
public static void m(int num) {
	1.The program has a syntax error because the two methods m have the same signature
	2.The program has a syntax error because the second m method is defined,
	but not invoked in the main method
	3.The program runs and prints 2 once
	4.The program runs and prints 2 twice

System.out.println(num); } }	

void Function(int n)
{
int i, count =0;;
for(i=1; i*i<=n; i++)
count++;
}
The time complexity of the above code snippet is
	1.
	O(n)
	2.
	O(logn)
	3.
	O(sqrt(n))
	4.
	O(n^2)

If message in Segmentation and Reassembly (SAR) sub layer of Application Adaptation Layer 3/4 has value of Segment type is 11 then it is called a	1.Beginning message 2.Ending message **3. Single-segment message** 4Middle message
In …….. Mode, the authentication header is inserted immediately after the IP header.	**1.Tunnel** 2.Transport 3. Packet switching 4. Payload of the header
The ..... protocol defines a set of messages sent over either User Datagram Protocol (UDP) port53 or Transmission Control Protocol(TCP) port53.	1.Name space **2.DNS** 3.Domain space 4.Zone transfer
UDP uses..... to handle outgoing user datagrams from multiple processes on one host.	1. Flow Control **2.Multiplexing** 3.Demultiplexing 4. Data Control
In the following pairs of OSI protocol layer/sub-layer and its functionality, the INCORRECT pair is	1.Network layer and Routing **2.Data Link Layer and Bit synchronization** 3.Transport layer and End-to end process communication 4.Medium Access Control sub-layer and Channel sharing
A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If	1.0111110100 **2.0111110101** 3.0111111101 4.0111111111

the output bit-string after stuffing is 01111100101, then the input bit-string is	
In one of the pairs of protocols given below, both the protocols can use multiple TCP connections between the same client and the server. Which one is that?	**1.HTTP,FTP** 2.HTTP,TELNET 3.FTP,SMTP 4.HTTP,SMTP
A telephone switch is a good example of which of the following types of switches.	1.packet 2.buffer 3.fabric **4.circuit**
How switching is performed in the internet?	1.Datagram approach to circuit switching at data link layer 2.Virtual circuit approach to message switching at network layer 3.Datagram approach to message switching at datalink layer 4.Datagram approach to packet switching at network layer.
Assume that source S and destination D are connected through two intermediate routers labeled R. Determine how many times each packet hasto visit the network layer and the data link layer during a transmission from S to D.	1.Network layer – 4 times and Data link layer-4 times 2.Network layer – 4 times and Data link layer-3 times **3.Network layer – 4 times and Data link layer-6 times** 4.Network layer – 2 times and Data link layer-6 times
Identify the correct sequence in which the following packets are transmitted on the network by a host when a browser requests a webpage from a remote server, assuming that the host has just been restarted.	1.HTTP GET request, DNS query, TCP SYN 2.DNS query, HTTP GET request, TCP SYN **3.DNS query, TCP SYN, HTTP GET request** 4.TCP SYN, DNS query, HTTP GET request
If a class B network on the Internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?	1.1022 2.1023 3.2046 4.2047
In an Ethernet local area network, which one of the following statements isTRUE?	1.A station stops to sense the channel once it starts transmitting a frame 2.The purpose of the jamming signal is to pad the frames that are smaller than the minimum frame size 3.A station continues to transmit the packet even after the collision is detected. 4.The exponential backoff mechanism reduces the probability of collision on retransmissions.

Which one of the following fields of an IP header is NOT modified by a typical IP router?	1.Checksum 2.Source address 3.Time to Live (TTL) 4.Length
Which one of the following protocols is NOT used to resolve one form of address to another one?	1.DNS 2.ARP 3.DHCP 4.RARP
An IP router with a Maximum Transmission Unit (MTU) of 1500 bytes has received an IPpacket of size 4404 bytes with an IP header of length 20 bytes. The values of the relevant fields in the header of the third IP fragment generated by the router for this packet are	1.MF bit: 0, Datagram Length: 1444; Offset: 370 2.MF bit: 1, Datagram Length: 1424; Offset: 185 3.MF bit: 1, Datagram Length: 1500; Offset: 370 4.MF bit: 0, Datagram Length: 1424; Offset: 2960
----------module of the DBMS controls access to DBMS information that is stored on disk, whether it is part of the database or the catalog	1.Stored data manager 2.DDL Compiler 3.DDL Catalog 4.DML Compiler
If a hospital has to store the description of each visit of a patient according to date what attribute you will use in the patient entity type?	1.composite 2.comples 3.multivalued 4.weak entity
What is the sequence of major events in the life of an applet?	1.init, start, stop, destroy 2.start, init , stop , destroy 3.init, start , destroy, stop 4. init, start, destroy
Suppose that everyone in a group of N people wants to communicate secretly with N-1 others using symmetric key cryptographic system. The communication between any two persons should not be decodable by the others in the group. The number of keys required in the system as a whole to satisfy the confidentiality requirement is	1.2N 2.N(N-1) 3.N(N-1)/2 4.(N-1)2
Value of checksum must be recalculated regardless of	1.De-fragmentation 2.Fragmentation 3.Transferred 4.Shared

Dotted-decimal notation of 10000001 00001011 00001011 11101111 would be	1.193.131.27.255 2.129.11.11.239 3.192.168.10.9 4.172.16.11.3
Which one of the following is the recurrence equation for the worst case time complexity of the Quicksort algorithm for sorting n(≥ 2) numbers? In the recurrence equations given in the options below, c is a constant.	1.T(n) = 2T (n/2) + cn 2.T(n) = T(n – 1) + T(0) + cn 3.T(n) = 2T (n – 2) + cn 4.T(n) = T(n/2) + cn
These networking classes encapsulate the "socket" paradigm pioneered in the (BSD) Give the abbreviation of BSD?	1.Berkeley Software Distribution 2.Berkeley Socket Distribution 3.Berkeley System Data 4.Berkeley SynchronizationData
The local host and the remote host are defined using IP addresses. To define the processes, we need second identifiers called	1.UDP addresses 2.transport addresses 3.Port addresses 4.TCP addresses
_____ uniquely identifies the MIME entities uniquely with reference to multiple contexts.	1.Content description 2.Content-id 3.Content type 4.Content transfer encoding
The resources needed for communication between end systems are reserved for the duration of session between end systems in	1.Packet switching 2.Circuit switching 3.Line switching 4. Frequency switching
A layer -4 firewall (a device that can look at all protocol headers up to the transport layer) CANNOT	1.block entire HTTP traffic during 9:00PM and 5:00AM 2.block all ICMP traffic 3.stop incoming traffic from a specific IP address but allow outgoing traffic to the same IP address 4.block TCP traffic from a specific user on a multi-user system during 9:00PM and 5:00AM
If message in Segmentation and Reassembly (SAR) sub layer of Application Adaptation Layer 3/4 has value of Segment type is 11 then it is called a	1.Beginning message 2.Ending message 3.Single-segment message 4.Middle message
In Circuit Switching, resources need to be reserved during the	1.Data transfer phase 2.Teardown phase 3.Setup phase 4.Propagation phase

The transport layer protocols used for real time multimedia, file transfer, DNS and email, respectively are	1.TCP, UDP, UDP and TCP 2.UDP, TCP, TCP and UDP **3.UDP, TCP, UDP and TCP** 4.TCP, UDP, TCP and UDP
Digital signature envelope is decrypted by using _____.	1. Merchant Private Key. **2. Payment's Private Key.** 3. Payment Public Key. 4. Merchant's Public Key.
One of the header fields in an IP datagram is the Time to Live (TTL) field. Which of the following statements best explains the need for this field?	1. It can be used to priortize packets 2.It can be used to reduce delays 3.It can be used to optimize throughput **4.It can be used to prevent packet looping**
The processed S/MIME along with security related data is called as _____.	**1.Public Key Cryptography Standard** 2.Private Key Cryptography Standard 3.S/MIME 4.MIME
Which one of the following allows a user at one site to establish a connection to another site and then pass keystrokes from local host to remote host?	1.HTTP 2.FTP **3.Telnet** 4. Sonet
Using public key cryptography, X adds a digital signature σ to message M, encrypts <M, σ >, and sends it to Y, where it is decrypted. Which one of the following sequences of keys is used for the operations?	1.Encryption: X's private key followed by Y's private key; Decryption: X's public key followed by Y's public key 2.Encryption: X's private key followed by Y's public key; Decryption: X's public key followed by Y's private key 3.Encryption: X's public key followed by Y's private key; Decryption: Y's public key followed by X's private key 4.Encryption: X's private key followed by Y's public key; Decryption: Y's private key followed by X's public key
---------- is a mode of operation for a block cipher, with the characteristic that each possible block of plaintext has a defined corresponding ciphertext value and vice versa.	1.Foot printing 2.Hash Function 3.WaterMark 4.Electronic Code Book
_____ Substitution is a process that accepts 48 bits from the XOR operation.	1.S-box 2.P-box 3.Expansion permutations 4.Key transformation

Which one of the following is a cryptographic protocol used to secure HTTP connection?	1.Stream Control Transmission Protocol (SCTP) 2.Transport Layer Security (TSL) 3.Explicit Congestion Notification (ECN) 4.Resource Reservation Protocol
Which method must be defined by a class implementing thejava.lang.Runnable interface?	1.void run() **2.public void run()** 3.public void start()4.void run(int priority)
. The attributes in foreign key and primary key have the same _____.	1.Number of tuples 2.Number of attributes 3.Domain 4.Symbol
A clustering index is created when _____.	1.primary key is declared and ordered 2.no key ordered **3.foreign key ordered** 4.there is no key and no order
Division operation is ideally suited to handle queries of the type:	1.customers who have no account in any of the branches in Melbourne 2.customers who have an account at all branches in Melbourne 3.customers who have an account in atleast one branch in Melbourne 4.customers who have only joint account in any one branch in Melbourne
If a transaction T has obtained an exclusive lock on item Q, then T can	1.read Q 2.write Q **3.read and write Q** 4.write Q but not read Q
The expected size of the join result divided by the maximum size is called _____.	1.Join cardinality 2.join selectivity 3.join count 4.number of rows
The process of analyzing the given relation schemas based on their functional dependencies is known as	1.Dependency 2.Normalization 3.Concurrency 4.Cannot be determined
What are the desirable properties of a transaction?	1.Atomicity, consistency, isolation, deadlock **2.Atomicity, consistency, isolation, durability** 3.Atomicity, concurrency, isolation, durability 4.Atomicity, concurrency, integrity, durability
What operator performs pattern matching?	**1.LIKE** 2.NULL

	3.NOT NULL 4.IS NULL
What does isNaN function do in JavaScript?	1. **Return true if the argument is not a number**. 2. Return false if the argument is not a number. 3. Return true if the argument is a number. 4. None of the above

What is the output of following JavaScript code

```
<script type="text/javascript">
var cst = "PHPKB Knowledge Base Software";
var result =cst.substring(7,8);
document.write(result);</script>
```

1.**n** 2. Error 3. Software 4. SOFTWARE

What is the output of following JavaScript code?

```
<script type="text/javascript">
function x(){
var s = "Quality 100%!{[!!";
var pattern = /\w/g;
document.write(s.match(pattern));
}</script>
```

1.%,!,{,[,!,! 2.Q,u,a,l,i,t,y,1,0,0 3. Quality 100 4. Error

What is the output of following JavaScript code?

```
<script type="text/javascript">
var cst="Chadha Software Technologies";
var result= cst.split(" ");
document.write(result); </script>
```

1.Chadha

2. C,h,a,d,h,a,S,o,f,t,w,a,r,e,T,e,c,h,n,o,l,o,g,i,e,s
3. **Chadha,Software,Technologies**
4. Chadha Software Technologies

What is the output of following JavaScript code?

```
<script type="text/javascript">
function x(z,t){
alert(x.length);}</script>
```

1. Error 2. 1 3. **2** 4. 3

Which of the following object represents the HTML document loaded into a browser window?	1.window 2.document 3.image 4.form
You can refresh the web page in javascript by using ..... method.	1.window.reload 2.location.Reload 3.window. Refresh 4.page.refresh
What is the correct JavaScript syntax to write "Hello World"	1.document.write("Hello World") 2.response.write("Hello World") 3."Hello World" 4.("Hello World")

What is the output of following JavaScript code

```
var cst = new Array();
cst[0] = "Web Development";
cst[1] = "Application Development"
cst[2] = "Testing"
cst[3] = "Chadha Software Technologies";
document.write(cst[0,1,2,3]);
```

1.Error 2.Chadha Software Technologies 3. Web Development
4.Web Developmnet,Application Development, Testing, Chadha Software Technologies

The postfix expression of the given infix expression a+b*c+(d*e+f)*g is	1.abc*+de*f+g*+ 2.ab+c*de*fg+*+ 3.a+bc*de*f+g*+ 4.abc+*def*+g*+
A _____ is often used if you want the user to verify or accept	1.Alert box 2.Confirm box 3.Dialog box

	4.Prompt box
A 20 Kbps satellite link has a propagation delay of 400 ms. The transmitter employs the "go backn ARQ" scheme with n set to 10. Assuming that each frame is 100 bytes long, what is the maximum data rate possible?	1.5kbps 2.10kbps 3.15kbps 4.20kbps
A network with CSMA/CD protocol in the MAC layer is running at 1 Gbps over a 1 km cable with no repeaters. The signal speed in the cable is 2 x 108 m/sec. The minimum frame size for this network should be	1. 10000 bits 2. 10000 bytes 3. 5000 bits 4. 5000 bytes
A subnet has been assigned a subnet mask of 255.255.255.192. What is the maximum number of hosts that can belong to this subnet?	1.14 2.30 3.62 4.126
Consider the following message M = 1010001101. The cyclic redundancy check (CRC) for this message using the divisor polynomial x5 + x4 + x2 + 1 is :	1.01110 2.01011 3.10101 4.10110
Which of the following statements is FALSE regarding a bridge	1.Bridge is a layer 2 device 2.Bridge reduces collision domain 3.Bridge is used to connect two or more LAN segments 4.Bridge reduces broadcast domain
A relation R(A,B,C,D,E,H) has the following functional dependencies F= {{A→BC},{CD→E},{E→C}, {D→AEH}, {ABH→BD}, {DH→BC}}. Find the Normal form of the relation	1.2NF 2.3NF 3.BCNF 4.1NF
_____ is the want for a specific product backed by the ability to pay	1.Supply 2.Want 3.Demand 4.Need

_____ is the process of deciding how to fill the company's most important executive positions	1. Self-directed Teams 2. Corporate downsizing 3. Succession planning 4. Organizational Restructuring
_____ research deals with practical problems	1.Exploratory 2.Basic 3.Experimental 4.Applied
_____ are products bought for further processing or for use in conducting a business	1.Consumer products 2.Services 3.Industrial products 4.Specialty products
_____ refers to the number of units to be chosen from the population	1.Sampling frame 2.Sample size 3.Sampling plan 4.Sampling method
A banking product is an example of _____	1.Tangible product 2.Generic product 3.Potential product 4.Intangible product
A buying process starts when the buyer recognizes a _____	1.An advertisement of the product 2.Problem or need 3.A salesperson from a previous visit 4.Product
A current ratio of less than one means	1.Current Liabilities < Current Assets 2.Fixed Assets > Current Assets 3.Current Assets < Current Liabilities 4.Share Capital > Current Assets
A variable that is presumed to cause a change in another variable is called a/an _____	1.Categorical variable 2.Dependent variable 3.Intervening variable 4.Independent variable
A company is in the _____ stage of the new product development process when the company develops the concept into a commercially viable physical product	1.Marketing strategy 2.Commercialization 3.Business analysis 4Product development

A personal account cannot be opened in _____	1.A scheduled bank 2.A co-operative bank 3.A private bank 4.The Reserve Bank of India
Actuary is a person who _____	1.Acts as an insurance agent 2.Computes the net liability of an insurance claim 3.Audits claims relating to insurance claims 4.Certifies the loss incurred by the insured
Budgetary control facilitates easy introduction of the _____	1.Ratio Analysis 2.Marginal costing 3.Innovation 4.Standard costing
Budgetary control system acts as a friend, philosopher and guide to the _____	1.Shareholders 2.Management 3.Employees 4.Creditors
Deceptive pricing is also referred to as _____	1.Superficial discounting 2.Confusing pricing 3.Odd-even pricing 4.Loss-leader pricing
Expand the acronym 'ADB'	1.Agrarian Development Bank 2.American Development Bank 3.Asian Development Bank 4.Asiatic Development Bank
Organizational democracy requires _____style of management	1.Participative 2.Laissez-faire 3.Paternalistic 4.Autocratic
Plan of study of a researcher is called the _____	1.Research problem 2.Research design 3.Research procedure 4.Research method
Regional rural banks are:	1.Co-operative society 2.Body corporate created under a special statute 3.Public sector undertaking of Central Govt. 4.Companies created under Companies Act
Research questions are crucial because they will _____	1.prevent you from thinking about research strategies 2.help you to decide which research area interests you 3.guide your decisions about what data to collect and from where

	4.ensure that your findings have external validity
The banking companies that are allowed to operate in a very limited geographical area, are known as _____	1.Shell banks 2.Regional rural banks 3.Local area banks 4.Narrow banks
The best sample is one that is _____	1.Convenient 2.Purposefully selected 3.Systematic 4.Able to represent the population
The communication that is used by managers to assign goals, point out problems that need attention and provide job instructions is called as _____	1.Lateral communication 2.Downward communication 3.Upward communication 4.Informal communication
The portion of total deposits of a commercial bank which it has to keep with RBI in the form of cash reserves is termed as _____	1.Repo Rate 2.Cash Reserve Ratio 3.Bank Interest Rate 4.Statutory Liquidity Ratio
The promotion strategy that uses sales force to market the products is known as _____	1.Push strategy 2.Integrated Strategy 3.Blocking strategy 4.Pull strategy
The promotion “P” of marketing mix is also known as _____	1.Distribution 2.Marketing Communication 3.Cost 4.Product Differentiation
he schedule used to measure a respondent’s opinion is _____	1.Document schedule 2. Interview schedule 3. Observation schedule 4. Rating schedule
The total cost that increases when the quantity produced is increased by one unit is called _____	1.Average cost 2.Fixed cost 3. Marginal Cost 4. Unit Cost
The unique characteristics that a learning organization possesses is that _____	1.Is that it focuses on hiring new employees who are highly skilled 2.Employees are rewarded for being innovative 3.It has the ability to gather information and use it for improving work processes 4.Members learn to get to know each other more
What is data collection?	1.Reviewing the literature review 2.Collecting the research question and objectives together

	3.Outlining how you will gather the information for your research question 4.Gathering the information (data) which will help you address your research question
Which behavioural science discipline contributes to Organizational Behavior 's understanding of group decision-making processes?	1.Political Science 2.Sociology 3.Anthropology 4.Social psychology
Which category of banks is under dual control of Government and RBI?	1.Public banks 2.Private banks 3.Regional rural banks 4.Cooperative banks
Which of the following are generally the inventories of a service business?	1.Purchased goods 2.Finished goods inventories 3.Raw material inventories 4.Work in process inventories
Which of the following groups of workers would be classified under indirect labour?	1.Machinists in an organization manufacturing clothes 2.Maintenance workers in a shoe and bag factory 3.Assembly workers in a vehicle manufacturing business 4.Bricklayers in a house building company
Which of the following is not an activity listed in the statement of cash flows?	1.Operating Activities 2.Investing Activities 3.Financing Activities 4.Funding Activities
Which of the following requires the listener to pay reasonably close attention to the speaker?	1.Marginal listening 2.Evaluative listening 3.Emphatic listening 4.Effective listening
which of the following statements regarding RBI is not correct:	1.Entire capital of RBI is held by Central Govt. & State Governments 2.Central Government appoints the governor of RBI 3.RBI has the authority to issue license to banks 4.Central Government can issue directions to RBI under RBI Act, 1934
Which of these does not belong to Maslow's Hierarchy Need Theory?	1.Esteem 2.Social 3.Control 4.Self-actualization
Which of these is an off the job training?	1.Coaching 2.Role play 3.Orientation program 4.Job Enrichment

Which of these is not a method of data collection?	1.Questionnaires 2. Experiments 3. Interviews 4. Observations
Which one of the following variables is not categorical?	1. Choice on a test item: true or false 2.Age of a person 3.Marital status of a person 4.Satisfaction scale of a product
Which type of managers takes less time to make their decisions and less information in making their choices?	1.Low risk-taking managers 2.High risk-taking managers 3.Efficient managers 4.Rational managers
Wholesaling does not include which of the following services?	1.Promotion 2.Selling 3.Distribution 4.Market research
Why is market segmentation primarily undertaken?	1.To achieve greater market share 2.To break down large markets into smaller markets 3.To surpass competitor 4.To group together customers with similar needs
"Doing an activity or behaviour voluntarily for its own sake, for the inherent satisfaction and pleasure derived from participation" well defines:	1.Conscientiousness 2.Intrinsic Motivation 3.Extrinsic Motivation 4.Machiavellianism
A method which creates the problem of secondary clustering is	1.Quadratic probing 2.Random probing 3.Seperate chaining 4.Double hashing
Time required to merge two sorted lists of size m and n, is	1.O(m| n) 2.O(m + n) 3. O(mlogn)4.O(nlogm)
Which of the following asymptotic notation is the worst among all?	1. O(n) + 9378 2.O(n ^3) 3. n^O(1) 4. 2^O(n)
. _____ is increasingly being used in server systems to improve performance by caching frequently used data, since it provides faster access than disk, with larger storage capacity than main memory.	1. Flash Memory 2.Disk 3.Main Memory 4.Secondary Memory

The output after second iteration of the sorting technique is given below. Identify the technique used 23 45 78 8 32 56	1.Insertion 2.Selection 3.Bubble 4.none
The runtime database processor of DBMS executes----------	1. Query statements only 2.The privileged commands,the executable query plans and the canned transactions 3.Privileged commands and Query statements 4.DML commands
For an algorithm whose step-count is 45n3+34n , choose the correct statement.	1.Complexity is O(n2) 2.Complexity is Omega(n) 3.Complexity is Theta(n2) 4.All three.
For what value of c1 and c2 , the theta notation of f(n)=5n2+3n+2 is n2?	1.5,5 2.5,6 3.6,5 4.7,6
The max-heap for the array (4, 3, 1, 5, 9, 2, 8) is	1.9,8,5,4,3,2,1 2.9,5,8,4,3,2,1 3.1,5,8,4,3,2,9 4.1,8,5,4,3,2,9
Which of the following is termed as reverse polish notation?	1.Big-O notation 2. Little-Oh notation 3. Prefix notation 4.none
You are given pointers to first and last nodes of a singly linked list, which of the following operations are dependent on the length of the linked list?	
Consider a relation R (A, B, C, D, E) with set of functional dependencies F = {A->BC, CD->E, B->D, E->A}. Which of the following is one of the candidate keys of R?	1.ABC 2.B 3. ED 4. E
Which of the following is not a function of a DBA?	1.Table creation 2.Index creation 3.User creation 4.Application creation

Assume relations R and S with the schemas R (A, B, C) and S (B, D). Which of the following is equivalent to r ⋈ s?	1.sr.B = s.B (r ⋈ s) 2. Õr.A, r.B, r.C, s.D (sr.B = s.B (r x s)) 3. Õr.A, r.B, s.B, r.C, s.D (sr.B = s.B (r x s)) 4. Õr.A, r.B, s.B, r.C, s.D (sr.B = s.B (r ⋈ s))
Assume that a table CUSTOMER has 10000 records. If the block size 1024 bytes and the record size is 80 bytes, how many records can be stored in each block to achieve maximum performance and how many blocks are required to store the entire table?	1.12, 834 2.13, 833 3.24, 834 4.23, 833
Assume that a table R with 1000 records is to be joined with another table S with 10000 records. What is the maximum number of records that would result in if we join R with S and the equi-join attribute of S is the primary key?	1.1,000 2.10,000 3.1,00,00,000 4.11,000
Consider a disk with following specification; sector size - 512 bytes, tracks per surface - 2000, sectors per track - 60, double-sided platters - 4, and average seek time - 20 msec. For a 5400 rpm hard disk for one revolution, if a single track of data can be transferred, then what is the transfer rate?	1.2727 Kbytes/second 2.2020 Kbytes/second 3.5400 Kbytes/second 4.2048 Kbytes/second
Consider a relation R (A, B). If A -> B is a trivial functional dependency and A is the super key for R, then what is the maximum normal form R can be in?	1.3NF 2.2NF 3.BCNF 4.1NF
Consider a relational table with the schema R (A, B, C). Assume that the cardinality of attribute A is 10, B is 20, and C is 5. What is the maximum number of records R can have without duplicate?	1.35 2.100 3.1000 4.200
Given R = ABCDEFGH and set of functional dependencies F = {BH->C, BH->F, E->F, A->D, F->A, BH->E, C->E, F->D}, which of the following is redundant set of functional dependencies?	1.BH->C, F->D, F->A 2.BH->C, F->D, BH->E 3.BH->E, A->D, F->D 4.BH->C, A->D, BH->E

<table>
<tr><td>e conjunctive selectionoperation σθ1∧θ2 (E) is equivalent to _____</td><td>1.σθ1(E) U σθ2 (E) 2.σθ1(E) ⋂ σθ2 (E)
3.<u>σθ1(σθ2(E))</u> 4.πθ1(E) U πθ2 (E)</td></tr>
<tr><td>The data manipulation language used in SQL is a,</td><td>1.Procedural DML and non-Procedural DML
2.Modification DML and Declarative DML
3.Non-Procedural DML and Declarative DML
4.<u>Procedural DML and Declarative DML</u></td></tr>
<tr><td>Which of the following concurrency control mechanisms insist unlocking of all read and write locks of transactions at the end of commit?</td><td>1.Strict 2 Phase Locking
2.Simple 2 Phase Locking
3.Timestamp ordering
<u>4.Rigorous 2 Phase Locking</u></td></tr>
<tr><td>Which of the following is a disadvantage of file processing system?
(I) Efficiency of high level programming,
(II) Data Isolation
(III) Integrity issues
(IV) Storing of records as files</td><td>1.Efficiency of high level programming,
2.Integrity issues
<u>3.Data Isolation and Integrity issues</u>
4.Data Isolation and Storing of records as files</td></tr>
<tr><td>Which of the following operator in SQL would produce the following result if applied between two relations Employee and Department?
<table><tr><th>Eno</th><th>EName</th><th>DeptNo</th><th>DName</th></tr><tr><td>111</td><td>Kumar</td><td>100</td><td>Sales</td></tr><tr><td>222</td><td>Steve</td><td>200</td><td>Finance</td></tr><tr><td>Null</td><td>Null</td><td>300</td><td>Admn</td></tr><tr><td>244</td><td>Meera</td><td>400</td><td>Mktg</td></tr></table></td><td>1.Natural Join
<u>2.Outer Join</u>
3.Cartesian Join
4.Projection Join</td></tr>
<tr><td>In SQL, relations can contain null values, and comparisons with null values are treated as unknown. Suppose all comparisons with a null value are treated as false. Which of the following pairs is not equivalent?</td><td>1.x = 5, not (not (x = 5)
2.x = 5, x > 4 and x < 6, where x is an integer
3.x < 5, not(x = 5)
4.x < 5</td></tr>
<tr><td>Which of the following is two way list?</td><td>1.grounded header list
2.circular list</td></tr>
</table>

	3.linked list with pointers to first and last nodes 4.none of the above **5. List traversed in two directions**
Which normal form is considered adequate for normal relational database design?	1.2NF 2.5NF 3.4NF **4.3NF**
____ users work on canned transactions	1. casual **2. naïve** 3. DBA 4. sophisticated
_____ is the most popular way of establishing an encrypted HTTP connection	1.www 2.http:// **3.HTTPS** 4.HTTs
_____, also known as "port forwarding," is the transmission of data intended for use only within a private, usually corporate network through a public network in such a way that the routing nodes in the public network are unaware that the transmission is part of a private network.	1.Switching **2.Tunneling** 3.Gateway 4.Forwarding
_____ cryptography refers to encryption methods in which both the sender and receiver share the same key.	1.Ceazer key 2.Aizemetric key 3.Asymmetric **4.Symmetric**
_____ detects loss of data errors in data, requests retransmission of lost data, rearranges out-of-order data, and even helps minimize network congestion to reduce the occurrence of the other problems	1.ICMP 2.IP 3.UDP **4.TCP**
_____ is a set of networks sharing the same routing policy	1.Autonous system 2.Subnets 3.Server Farm 4.Supernets
_____ extracts the DML statements from a host language and passes to DML Compiler	1.Sub Language compiler 2.Host Language compiler **3.Pre compiler** 4.Query Compiler

_____ mechanism is used for converting a weak entity set into strong entity set in entity-relationship diagram	1.Generalization 2.Aggregation 3.Specialization **4.Adding suitable attributes**
_____ is the variable reward granted to employees as per their performance	1.Perks 2.Allowances 3.Incentives **4.Remuneration**
_____is used by network devices, like routers, to send error messages indicating, for example, that a requested service is not available or that a host or router could not be reached.	1.BGP **2.ICMP** 3.IGP 4.RIP
A system of interlinked hypertext documents accessed via the Internet is known as	1.Internet 2.Intranet **3.World Wide Web** 4.Extranet
A 2 km long brodcast LAN has 10^7 bps bandwidth and uses CSMA/ CD. The signal travels along the wire at 2 *10 ^8 m/s. What is the minimum packet size that can be used on this network ?	1.50 bytes 2.100 bytes 3.150 bytes 4.200 bytes **5. 25 bytes**
A 4 KHz noise less channel with one sample ever 125 per sec is used to transmit digital signals. Differential PCM with 4 bit relative signal value is used. Then how many bits per second are actually sent?	**1.32 Kbps** 2.64 Kbps 3.8 Kbps 4.128 Kbps
A bill of exchange which is drawn on a specific bank and is not payable otherwise than on demand, to bearer or to order, is called _____	1.Usance bill of exchange 2.Inland bill of exchange **3.Cheque** 4.Accommodation bill
A binary search tree is generated by inserting in order the following integers 50, 15, 62, 5, 20, 58, 91, 3, 8, 37, 60, 24. The number of nodes in the left subtree and right subtree of the root respectively are	**1.(7, 4)** 2.(4, 7) 3.(8, 3) 4.(3, 8)

A binary search tree whose left subtree and right subtree differ in hight by at most 1 unit is called ……	1.Binary Tree 2.Red Black tree 3.Expression tree **4.AVL tree**
A binary tree in which every non-leaf node has non-empty left and right subtrees is called a strictly binary tree. Such a tree with 10 leaves	1.cannot have more than 19 nodes **2.has exactly 19 nodes** 3.cannot have more than 17 nodes 4.has exactly 17 nodes
A bridge has access to which address of a station on the same network ?	1.Physical 2.Service access point **3.Network** 4.Transport
A change in an individual's behaviour prompted by information and experience refers to which one of the following concept?	1.Perception 2.Learning **3.Motivation** 4.Role selection
A circuit has seven inputs and one outputs based on three signals. Which component is suitable to realize this circuit?	1.demultiplexer 2.decoder **3.multiplexer** 4.encoder
A complex low pass signal has a bandwidth of 100kHz. What is the minimum sampling rate for this signal	1.100,000 **2.200,000** 3.400,000 4.800,000
A computer has a 256 KByte, 4-way set associative, write back data cache with block size of 32 Bytes. The processor sends 32 bit addresses to the cache controller. Each cache tag directory entry contains, in addition to address tag, 2 valid bits, 1 modified bit and 1 replacement bit. The number of bits in the tag field of an address is	1.11 2. 14 **3.16** 4. 27
A binary tree in which every non-leaf node has non-empty left and right subtrees is called a strictly binary tree. Such a tree with 10 leaves	1.cannot have more than 19 nodes **2.has exactly 19 nodes** 3.cannot have more than 17 nodes 4.has exactly 17 nodes
A processor that has carry, overflow and sign flag bits as part of its program status	1.1, 1, 0 **2.1, 0, 0**

word (PSW) performs addition of the following two 2's complement numbers 01001101 and 11101001. After the execution of this addition operation, the status of the carry, overflow and sign flags, respectively will be:	3.0, 1, 0 4.1, 0, 1
A queue data structure can be used for	1.expression parsing 2.recursion 3.resource allocation 4.balancing symbols
A scheduling algorithm assigns priority proportional to the waiting time of a process. Every process starts with priority zero(the lowest priority). The scheduler re-evaluates the process priorities every T time units and decides the next process to schedule. Which one of the following is TRUE if the processes have no I/O operations and all arrive at time zero?	1.This algorithm is equivalent to the first-come-first-serve algorithm 2.This algorithm is equivalent to the shortest-job-first algorithm **3.This algorithm is equivalent to the round-robin algorithm** 4.This algorithm is equivalent to the shortest-remaining-time-first algorithm
A schema describes	1.data elements 2.records and files 3.record relationships **4.all of these**
A sin wave has a frequency of 8 KHz. What is the period?	**1.125µs** 2.100µs 3.45µs 4.130µs
A sort which relatively passes through a list to exchange the first element with any element less than it and then repeats with a new first element is called	1.Insertion sort 2.selection sort 3.heap sort **4.quick sort**
A state that refers to the database when it is loaded is---------	1.valid state 2.instant **3.initial database state** 4.Schema
A station in a network forwards incoming packets by placing them on its shortest output queue. What routing algorithm is being used?	**1.hot potato routing** 2.flooding 3.static routing 4.delta routing

A subset of a network that includes all the routers but contains no loops is called:	**1.spanning tree** 2.Graph 3.Subnet 4.None of the Above
A transaction is permanently saved in the hard disk only after giving	1.Savepoint followed by Commit 2.Rollback followed by Commit 3.Update followed by Commit 4.Commit
A union that has no constructor can be initialized with another union of _____ type	**1.same** 2.different 3.virtual 4.class
A variable P is called pointer if	**1.P contains the address of an element in data** 2.P can store only memory addresses 3.P points the address of first element in data 4.P contain the data and the addresses of data
A variable whose size is determined at compile time and cannot be changed at run time is	1.not a variable 2.dynamic variable **3.static variable** 4.none of these
A wireless network interface controller can work in	1. infrastructure mode 2.ad-hoc mode **3.both (a) and (b)** 4.none of the mentioned
Acid test ratio should normally be _____	**1. 1:1** 2. 2:2 3. 1:2 4. 2:1
Action research means _____	**1.A research initiated to solve an immediate problem** 2.A longitudinal research 3.A research with socioeconomic objective 4.An applied research
AJAX has become very commonly used because	1.it allows pages to be interactive without further communication with the server. 2.XML is a close relative of HTML. 3.it avoids the need for JavaScript. **4.it allows page content to be updated without requiring a full page reload.**
All factory costs are treated as _____ while all administration costs are treated as _____	1.Period Costs, Product costs **2.Product costs, Period costs** 3.Period costs, Fixed costs 4.Fixed costs, Period costs

Among the following ,which has the highest time complexity O(n2) in all the three cases.(Worst,average and best) and cannot be improved?	1.Insertion sort 2.Bubble sort **3.Selection sort** 4.Selection sort and Bubble sort
An area of a business which collects costs is known as _____	1.Cost unit 2.Branch 3.Profit centre **4.Cost centre**
An 8KB direct-mapped write-back cache is organized as multiple blocks, each of size 32-bytes. The processor generates 32-bit addresses. The cache controller maintains the tag information for each cache block comprising of the following. 1 Valid bit 1 Modified bit As many bits as the minimum needed to identify the memory block mapped in the cache. What is the total size of memory needed at the cache controller to store meta-data (tags) for the cache?	1.4864 bits 2.6144 bits 3.6656 bits **4.5376 bits**
An advantage of the database approach is	1.Ability to associate related data 2.Increase security 3. Elimination of the data redundancy **4.All of these**
An Employee entity of a company database can be a SECRETARY, TECHNICIAN or MANAGER. What kind of participation constraint can be used for Employee and its job types?	1.Disjoint and partial 2.Disjoint and total 3.overlapping and partial 4.overlapping and total
An error-detecting code inserted as a field in a block of data to be transmitted is known as	1.Error detecting code **2.Frame check sequence** 3. Checksum 4. flow control
An identifier in C	1.can contain both upper case and lower case 2.is made up of letters, numerals and the underscore 3.is a name of a thing such as variable and function **4.all of these**
An organization has a class B network and wishes to form subnets for 64 departments. The subnet mask would be	1.255.255.0.0 2.255.255.64.0 3.255.255.128.0 **4.255.255.252.0**

Answer the following question based on the given table. Package Name | Class Name Lab.project.util | Date, Time Lab.project.game | Car, Puzzle What will be the access modifier if a method in Date class is inherited in the Puzzle class?	1.final 2.protected 3.private 4. default
ARP (Address Resolution Protocol) is	**1.a TCP/IP protocol used to dynamically bind a high level IP Address to a low-level physical hardware address** 2.a TCP/IP high level protocol for transferring files from one machine to another 3.a protocol used to monitor computers 4.a protocol that handles error and control messages
ARQ stands for	1.Automatic Repeat Quantization **2.Automatic Repeat Request** 3.Acknowledgement Repeat Request 4.Automatic Re-transmission Request
Assume transaction A holds a shared lock R. If transaction B also requests for a shared lock on R.	1.It will result in a deadlock situation. **2.It will immediately be granted**. 3.It will immediately be rejected. 4.It will be granted as soon as it is released by A .
AVL trees have a faster _____	**1.Retrieval** 2.Updation 3.Insertion 4.Delation
Baud means?	**1.The number of bits transmitted per unit time** 2.The number of bytes transmitted per unit time 3.The rate at which the signal changes 4.None of above
Bayone-Neill-Concelman(BNC) connectors are used with which type of cables	1.UTP 2.STP **3.Coaxial cable** 4.Optical Cables
Browsers typically render text wrapped in _____ tags as an indented paragraph.	1.p **2.pre** 3.blockquote 4.paragraph

Buffer stock' is the level of stock which is _____	1.At which the ordering process should start 2.Maximum stock at the inventory 3.Half of the actual stock **4.Minimum stock level below which actual stock should not fall**
By default, any real number in C is treated as	1.a float **2.a double** 3.depends upon memory model that is used 4.a long double
Can a system have multiple DMA controllers?	1. yes 2. no 3. only two 4. not more than five
Can any unsigned number be represented using one register in 64-bit processor	No 2. yes 3.signed number alone can be represented 4. Real numbers (positive and negative) can alone be represented
Can approximate values concept be used for processor cache operation?	1.yes 2. no 3. not for processor caches 4. not for caches but for main memory
Can floating point add/subtract operation be pipelined?	1. yes 2. no 3. maybe sometimes 4. if the range is between 100 and 1000
Centralized DBMS has----------	**1. DBMS software, Application programs and user interface processing software.** 2.DBMS server 3.UI processing software 4.Webserver
Changing the conceptual schema without having to change physical schema is	1.logical data independence 2.conceptual data independence **3.physical data independence** 4.None of these
Computers use addressing mode techniques for _____.	1.Giving programming versatility to the user by providing facilities as pointers to memory counters for loop control 2.Specifying rules for modifying or interpreting address field of the instruction 3.To reduce no. of bits in the field of instruction **4.All the above**
Consider a computer system with 40-bit virtual addressing and page size of sixteen kilobytes. If the computer system has a one-level page table per process and each page table entry requires 48 bits, then the	1.383 **2.384** 3.385 4.999

size of the per-process page table is _____ megabytes.	
Consider a 4-way set associative cache consisting of 128 lines with a line size of 64 words. The CPU generates a 20-bit address of a word in main memory. The number of bits in the TAG, LINE and WORD fields are respectively:	1.9,6,5 2.7,7,6 3.7,5,8 **4.9,5,6**
Consider a B+ tree in which the search Answer is 12 bytes long, block size is 1024 bytes,record pointer is 10 bytes long and block pointer is 8 bytes long. The maximum number of keys that can be accommodated in each non-leaf node of the tree is ____ .	1.40 **2.50** 3.60 4.70
Consider a directed line(->) from the relationship set advisor to both entity sets instructor and student. This indicates _____ cardinality	1.One to many **2.One to one** 3.Many to many 4.Many to one
Consider a processor with 64 registers and an instruction set of size twelve. Each instruction has five distinct fields, namely, opcode, two source register identifiers, one destination register identifier, and a twelve-bit immediate value. Each instruction must be stored in memory in a byte-aligned fashion. If a program has 100 instructions, the amount of memory (in bytes) consumed by the program text is _____	1.100 2.200 3.400 **4. 500**
Consider a schedule S1 given below; R1(A); W1(A); R2(B); R2(A); R1(B); W2(A+B); W1(B); where R1 and W1 are read and write operations of transaction T1 and R2 and W2 are read and write operations of transaction T2. Which of the following is correct regarding schedule S1?	1.S1 is a view serializable schedule 2.S1 is a serializable schedule 3.A deadlock will occur if 2PL is used 4.S1 is a conflict serializable schedule
Consider six memory partitions of sizes 200 KB, 400 KB, 600 KB, 500 KB, 300 KB and 250KB, where KB refers to kilobyte. These	**1.200KB and 300 KB** 2.200KB and 250 KB 3.250KB and 300 KB 4.300KB and 400 KB

partitions need to be allotted to four processes of sizes 357 KB, 210KB, 468 KB and 491 KB in that order. If the best fit algorithm is used, which partitions are NOT allotted to any process?	
Consider the 3 process, P1, P2 and P3 shown in the table. Process Arrival time Time units Required P1 0 5 P2 1 7 P3 3 4 The completion order of the 3 processes under the policies FCFS and RR2 (round robin scheduling) with CPU quantum of 2 time units are	1.FCFS: P1, P2, P3 RR2: P1, P2, P3 2.FCFS: P1, P3, P2 RR2: P1, P3, P2 3.FCFS: P1, P3, P2 RR2: P1, P2, P3 **4.FCFS: P1, P2, P3 RR2: P1, P3, P2**
Consider the entities customer (customer-name, customer-city,customer-street) and account(account-no,balance) with following relationship  If depositor is a one-to-many relationship from account to customer, then this ER diagram can be reduced to which of the following relational schemas?	1.Customer (customer-name, customer-street, customer-city, account-number) Account(account-number, balance, customer-name) Depositor (customer-name, account-number) **2.Customer (customer-name, customer-street, customer-city, account-number)** **Account(account-number, balance)** 3.Customer (customer-name, customer-street, customer-city) Account(account-number, balance) Depositor (customer-name, account-number) 4.Customer (customer-name, customer-street, customer-city) Account(account-number, balance, customer-name)

Consider the following C function.
int fun (int n) {
int x =1, k;
if (n ==1) return x;
for (k=1; k < n; ++k)
x = x + fun (k)* fun (n - k); return x;
}
The return value of fun (5) is _____
	1. 53 2. 42 **3. 51** 4. 52

Consider the following C program #inclue int main() int i, j, k 0;	1. 43 2. 9 3. 2 4. **10**

j=2*3/4+2.0 / 5+8 / 5;
k-= --j;
for (i=0; i<5; i++)
{
Switch (i + k)
{
case1:
case 2 : printf ("\ n%d", i+k)
case 3 : printf ("\ n%d", i+k);
default : printf ("\n%d",i+k);
}
}
Return 0:
}
The number of times printf statement is executed is _____.	

Consider the following code snippet. What purpose does exec() solve in the above code ?
 	
var pattern = /Java/g;
 	
var text = "JavaScript is more fun than Java!";
 	
var result;
 	
while ((result = pattern.exec(text)) != null)
 	
{
 	
alert("Matched '" + result[0] + "'" +" at position " + result.index +"; next search begins at " + pattern.lastIndex);
 	
}
	1.**Returns the same kind of array whether or not the regular expression has the global g flag.**
	2.Returns different arrays in the different turns of iterations
	3.Both a and b
	4.None of the mentioned

Consider the following four schedules due to three transactions (indicated by the subscript) using read and write on a data item x, denoted by r(x) and w(x) respectively. Which one of them is conflict serializable?	1.r1(x); r2(x); w1(x); r3(x); w2(x) 2.r2(x);r1(x);w2(x);r3(x);w1(x) 3.**r2(x);w2(x);r3(x);r1(x);w1(x)** 4.r3(x);r2(x);r1(x);w2(x);w1(x)
Consider the following pseudo code fragment: printf (“Hello”); if(!fork( )) printf(“World”);	1.Hello Hello World World 2.Hello World World **3.Hello World Hello World** 4.Hello World

Which of the following is the output of the code fragment?	
Consider the following schema as: Product_Master (prod_id, prod_name, rate) Purchase_details (prod_id, quantity, dept_no, purchase_date). Choose the suitable relational algebra expressionn for Get Product_id, Product_name & quantity for all purchased products.	1.π *prodid,prodname,quantity* (σ*Product_Master.prodid=Purchase_Details.prodid*) (*Product*_Master × *Purchase*_Details) 2.π *prodid,prodname,quantity* (*Product*_Master × *Purchase*_Details) 3.σ *prodid,prodname,quantity* (σ*Product_Master.prodid=Purchase_Details.prodid*) (*Product*_Master × *Purchase*_Details) 4.σ *prodid,prodname,quantity* (π *Product_Master.prodid=Purchase_Details.prodid*) (*Product*_Master × *Purchase*_Details)
Consider the following statement containing regular expressions var text = "testing: 1, 2, 3"; var pattern = /\d+/g; In order to check if the pattern matches, the statement is	1.text= =pattern 2. text.equals(pattern) 3.text.test(pattern) 4.**pattern.test(text)**
Consider this binary search tree: 14 / \ 2 16 / \ 1 5 / 4 Suppose we remove the root, replacing it with something from the left	**1.5** 2.1 3.4 4.2
Consider two cache organizations: The first one is 32 KB 2-way set associative with 32-byte block size. The second one is of the same size but direct mapped. The size of an address is 32 bits in both cases. A 2-to-1 multiplexer has a latency of 0.6 ns while a k bit comparator has a latency of k/10 ns. The hit latency of the set associative organization is h1 while that of the direct mapped one is h2. The value of h2 is:	1.**2.4ns** 2.2.3 ns 3.1.8 ns 4.1.7 ns
Course_Info{Course_no, Sec_no, Offering_dept, Credit_hours, Course_level,	1.**Course no, Sec_no, Semester and Year** 2.**Course no**

Instructor_ssn, Semester, Year, Days_hours, Room_no, No_of_students}. The Course_Info has following functional dependencies: **{Course_no}→{Offering_dept, Credit_hours, Course_level}** **{Course_no, Sec_no, Semester, Year}→{Days_hours, Room_no, No_of_students, Instructor_ssn }** **{Room_no, Days_hours, Semester, Year}→{Instructor_ssn, Course_no, Sec_no}** Find the keys of the relation	3.**Course_no and Sec_no** 4.**Semester and Year**
Creating a B Tree index for your database has to be specified in _____.	1. TCL 2. SDL 3. VDL
CSMA (Carrier Sense Multiple Access) is	1.a method of determining which device has access to the transmission medium **at a**ny time 2.**a method access control technique for multiple-access transmission media**. 3.a very common bit-oriented data link protocol issued by ISO. 4.network access standard for connecting stations to a circuit-switched network
Data independence means	1.data is defined separately and not included in programs. 2.programs are not dependent on the physical attributes of data 3. programs are not dependent on the logical attributes of data 4.**programs are not dependent on both physical and logical attributes of data**
Data link layer retransmits the damaged frames in most networks. If the probability of a frame's being damaged is p, what is the mean number of transmissions required to send a frame if acknowledgements are never lost.	1.P I (K + 1) 2.KIK (1 + F) 3.**1/ (1 - F)** 4.K I (K - P)
Data link layer retransmits the damaged frames in most networks. If probability of a frame's being damaged is p, then what is the mean number of transmissions required to send a frame if acknowledgements are never lost ?	1.K / K - P **2.1 / K - P** 3. K / K(1 + p) 4.p / K + 1

Data Model that provides ad-hoc queries is ----------	1.Network 2.**Hierarchical** 3.Relational 4.Object Oriented
Data security threats include	1.hardware failure 2.fraudulent manipulation of data 3**.privacy invasion** 4.hardware failureall of these

Determine the output of the following code?
 	
#include
using namespace std;
 	
void func_a(int *k)
{
*k += 20;
}
 	
void func_b(int *x)
{
int m=*x,*n = &m;
*n+=10;
}
 	
int main()
{
int var = 25,*varp=&var;
func_a(varp);
*varp += 10;
func_b(varp);
cout<<var<<*varp;
return 0;
}</var<<*varp;
	1.5555 2.5545 3.6565 4.4555

Determine the output of the following code?
 	
#include
using namespace std;
class one
{
int a;
static int b;
public:
void initialize();
void print();
static void print_S();
};
int one::b = 0;
 	
void one::initialize()
	1.1110 2.1111 3.1011 4.1010

{
a = 10;
b ++;
 	
}
void one::print()
{
cout<<a;
cout<<b;
}
void one::print_S()
{
 	
cout<<b;
}
 	
int main()
{
one o;
o.initialize();
o.print();
o.print_S();
return 0;
}
</b;
</b;
</a;	

Difficult reconnection and fault isolation are disadvantages of	1.Star Topology 2.Mesh Topology 3.Ring Topology 4.**Bus Topology**
DMA is useful for the operations	**1.large and fast data transfers between memory and io devices** 2.small data transfers between memory and cache 3.slow and small data trasfers between memory and io devices 4.fast and slow data transfers between memory and io devices
Dynamic web page	1.is same every time whenever it displays 2.**generates on demand by a program or a request from browser** 3.both (a) and (b) 4.None of the above

Each packet is routed independently in	1.virtual circuit subnet 2.short circuit subnet 3. **datagram subnet** 4.ATM subnet
Elapsed time between an inquiry and a response is called.	1. Transit Time 2. Delay Time 3.Processing Time 4.**Response Time**
End-to-end connectivity is provided from host-to-host in:	1.Network layer 2.Data link layer **4.Transport layer**
Error control is needed at the transport layer because of potential errors occurring _____.	1.from transmission line noise 2.**in routers** 3.from out-of-sequence delivery 4.from packet losses.
Error detection at the data link layer is achieved by?	1.Bit stuffing 2.**Cyclic redundancy codes** 3.Hamming codes 4.Equalization
Ethernet and Token-Ring are the two most commonly used network architectures in the world. Jim has heard of the different topologies for networks and wants to choose the architecture that will provide him with the most options. Which of the following would that be? Choose the most correct answer.	1.Token-Ring because it currently can run at both 4Mbps and 16Mbps. This means that it can be used in any topology 2.Ethernet, because it is cabled using fiber-optic cable 3.Token-Ring, because it uses a MAU 4.**Ethernet, because it can be set up with most topologies and can use multiple transfer speeds**

Find the time complexity of given code snippet
for(int i=1;i<=n;i++)
for(int j=1;j<=n;j*=2)
Printf("*");
	1.O(nlogn)
	2.O(n^2)
	3.O(n^2logn)
	4.O(n)

Fixed budget is useless for comparison when the level of activity is _____	1.Fluctuates both ways 2.Increases 3.Constant 4.Decreases
For the given infix expression a+b^c*(d-e) where '^' denotes the EX-OR operator, the corresponding prefix expression is	1.-+a^b*cde 2.**+a*^bc-de** 3.^+ab*c-de 4.+-a^bc*de
For which one of the following reason: does Internet Protocol (IP) use the time-to-live	1. Ensure packets reach destination within that time 2. Discard packets that reach later than that time

(TTL) field in the IP datagram header?	3.**Prevent packets from looping indefinitely** 4.Limit the time for which a packet gets queued in intermediate routers
Four bits are used for packet sequence numbering in a sliding window protocol used in a computer network. What is the maximum window size?	1.4 2.8 3.**15** 4.16
Frames from one LAN can be transmitted to another LAN via the device	1.Router 2.Repeater 3.Modem 4.**Bridge**
Given four frames in main memory, the following is the content of the page table. Assuming the frames are fetched at time instant 3, 4, 1, 2 which frame will be replaced to place the page 46 using first in first out replacement algorithm? 23 34 10 4	1.Third frame starting from first 2.second frame starting from first 3.first frame starting from first 4.Last frame starting from first
Given the following structure template, choose the correct syntax for accessing the 5th subject marks of the 3rd student. struct stud { int marks[6]; char sname[20]; char rno[10]; }s[10];	1. stud[4].marks[2] 2. s[4].marks[2] 3. **s[2].marks[4**] 4. stud[2].marks[4]

Graph traversal is different from a tree traversal, because	1.trees are not connected. 2.**graphs may have loop** 3.trees have root 4. None is true as tree is a subset of graph.
Hamming code is a method of	1. **Error detection** 2.Error correction 3.Error encapsulation 4.Error manipulation
How do you create a new object in JavaScript?	1.**var obj={ };** 2.var obj=Object( ); 3.var obj=new object( ); 4.var obj = new obj( );
How do you normalize any given binary fraction number with leading zero(es)	1.remove leading zero(es) 2.subtract from non-zero constant 3.add non-zero constant 4.cannot be done
How many 8-bit characters can be transmitted per second over a 9600 baud serial communication link using asynchronous mode of transmission with one start bit, eight data bits, and one parity bit ?	1.600 2.**800** 3.900 4.1200
How many 8-bit characters can be transmitted per second over a 9600 baud serial communication link using asynchronous mode of transmission with one start bit, eight data bits, two stop bits, and one parity bit?	1.600 2.**800** 3.1200 4.876
How many address bits are needed to select all memory locations in the 16K × 1 RAM?	1.12 bits 2.10 bits 3.**14 bits** 4.one bit
How many bits are present in registers A, B, C together in 8085?	1.6 2.**16** 3.24 4.32
How many flip-flops are present in register of sixteen bits?	1.32 2.8 3.16 **4.64**
How many gate delays are present in efficient implementation of XOR gate ?	1.three 2.two 3.one 4.five

How many modes are present in 8255 and what are they?	1.5, A to E 2.6, 0 to 5 3.4, 2 to 5 4.one , one
How many output lines are present in an encoder with 2^n input lines?	1.n+1 2.n-1 **3.n** 4.2n
How many phases are present in the simplest pipeline system?	1.Two 2.Three 3.**Four** 4.Seven
How many possible outcome values are present in boolean algebra?	1.one 2.**two** 3.three 4.none
How many swaps are required to sort the given array using bubble sort - { 2, 5, 1, 3, 4}	1.4 2.5 3.6 4.7
How many ways are present in 4-way set associative cache of 16 sets?	1.34 2.2 3.64 4.**32**
How to find the index of a particular string?	1.position() 2.index() 3**.indexOf()** 4.None of the mentioned
HTTP code ____ indicates that the required resource could not be found.	1.400 2.401 3.**404** 4.101
HTTP error messages, also called _____ are response codes given by Web-servers and help identify the cause of the problem.	1.HTTP recovery codes 2.**HTTP status codes** 3. HTTPs 4. HTTP fix
HTTP is _____ protocol	1.Network Layer 2.Transport layer 3.**application layer** 4.Session
Hypertext Transfer Protocol (HTTP) is _____ protocol.	1.**connectionless** 2.connection oriented 3.routing 4.node
Hypertext Transfer Protocol (HTTP) uses services of TCP on	1.**well, known port no. 80** 2. well, known port no. 81 3. well, known port no. 8080 4. well, known port no. 82

Identify the item that is not taken into account in computing the current ratio	1. Stock 2.**Bank overdraft** 3. Cash balance 4. Bank balance
Identify the minimal key for relational scheme R(A, B, C, D, E) with functional dependencies F = {A → B, B → C, AC → D}	1.**A** 2.AE 3.BE 4.CE
Changing the conceptual schema without having to change physical schema is	1.Indirect addressing mode 2.Immediate addressing mode 3.Direct addressing mode 4.Indexed addressing mode
Identify the data structure which allows deletions at both ends of the list but insertion at only one end	1.queue 2.priority queue 3.output restricted deque 4.**input restricted deque**
IEEE 802.11 is for	1.Ethernet 2.Tokenring 3.Token bus 4.**WLAN**
IEEE 802.5 is a _____	1. **Token Ring** 2. Ethernet 3. Token Bus 4. FDDI
If we can determine exactly those entities that will become members of each subclass by a condition then such subclasses are called----------	1.**Predicate defined subclasses** 2.Attribute defined subclasses 3.User defined subclasses 4.it is not a subclass type
If a disk has a seek time of 20ms, rotates 20 revolutions per second, has 100 words per block, and each track has capacity of 300 words. Then the total time required to access one block is	1.40 2.25 3**.60** 4.30
If a hospital has to store the description of each visit of a patient according to date what attribute you will use in the patient entity type?	1. multi valued 2.Complex 3. Composite 4. weak entity
If a node having two children is deleted from a BST, it is replaced by its	1.Inorder predecessor 2.Inorder successor 3.Preorder successor 4.Preorder predecessor
If a pipeline has five stages, assuming each stage is one cycle, the earliest time to receive an output from an instruction	1.first cycle 2.fifth cycle 3.third cycle 4.never

without any forwarding (not nop) is after which cycle?	
If an AJAX request made using jQuery fails,	1.the browser will automatically report the problem with an alert message. 2.an error message will be displayed in the browser window content area. 3.the programmer should arrange for it to be reported using the jQuery .fail() method. 4.there is no way to notify the user.
If Human voice is required to be digitized what will be the bit rate at 16 bits per sample?	1.64 kbps 2.128 kbps 3.256 kbps 4.512 kbps
If link transmits 4000 frames per second, and each slot has 8 bits,the transmission rate of circuit this TDM is	1.32kbps 2.500kbps 3.1000kbps 4.32Mbps
If the element 12 has to be searched in the array (2,4,8, 9,14,16, 18), using binary search, the result can be obtained within _____ comparisons.	1.2 2.3 3.4 4.no comparison made as '12' is not in the array.
If the opearand of stack operation is register, the stack contents in 8085 store which of the following?	1.content of register pair 2.content of one Register only 3.content of memory location 4.only stack contents
If the page size is 1024 bytes, what is the page number in decimal of the following virtual address 1110 1010010101	1.2 2.10 3.14 4.5
If two relations R and S are joined, then the non matching tuples of both R and S are ignored in	1.left outer join 2.right outer join 3.full outer join 4.inner join
If user A wants to send an encrypted message to user B. The plain text of A is encrypted with the _____.	1.Public Key of user A 2.Public Key of user B 3.Private Key of user A 4.Private Key of user B

If you configure the TCP/IP address and other TCP/IP parameters manually, you can always verify the configuration through which of the following? Select the best answer.	1.Network Properties dialog box 2.Server Services dialog box 3.DHCPINFO command-line utility 4.Advanced Properties tab of TCP/ IP Info.
If a , b , c, d are four nodes connected in sequence in a doubly-linked list Struct node *temp=a; Temp=temp->next; (Temp->next)->prev=temp->prev; (Temp->prev)->next=temp->next; Which of the following is true?	1. 'c' is made the predecessor node for 'a' 2.b's predecessor is made to point to NULL. 3.'b' is the made the predecessor of node 'd' **4. 'a' is made the predecessor node for 'c'**
In 8085 subtraction is performed using which method?	1.Direct subtraction using full subtractor 2.one's complement method 3.two's complement method 4.convert to decimal, perform the subtraction, convert the result to binary
In a E-R diagram, ellipses represent a	1.attributes 2.relationship among entity sets 3.entity sets 4.link between attributes and entity sets
In a k-way set associative cache, the cache is divided into v sets, each of which consists of k lines. The lines of a set are placed in sequence one after another. The lines in set s are sequenced before the lines in set (s+1). The main memory blocks are numbered 0 on wards. The main memory block numbered j must be mapped to any one of the cache lines from	1.(j mod v) * k to (j mod v) * k + (k-1) 2.(j mod v) to (j mod v) + (k-1) 3.(j mod k) to (j mod k) + (v-1) 4.(j mod k) * v to (j mod k) * v + (v-1)
In a min-heap	1.parent node has a value greater than its left and right child nodes 2.parent node has a value lesser than its left and right child nodes 3.parent node has a value greater than its left child node and lesser than its right child node 4.none
In a packet switching network, packets are routed from source to destination along a single path having two intermediate node. If the message size is 24 bytes and each	1.4 2.6 3.7 4.9

packet contains a header of 3 bytes, then the optimum packet size is	
In a priority queue insertion and deletion takes place at	1.front, rear end 2.only rear end 3.only front end 4.at any position
In a token ring network the transmission speed is 10 bps and the propagation speed is 200 metres/ s µ . The 1-bit delay in this network is equivalent to;	1. 500 metres of cable 2.200 metres of cable 3.20 metres of cable 4.50 metres of cable
In communication satellite, multiple repeaters are known as?	1.Detectors 2.Modulators 3.Stations 4.Transponders
In cyclic redundancy checking, the divisor is _____ the CRC.	1.the same size as 2.one bit less than 3.one bit more than 4.two bits more
In Depth First Search, how many times a node is visited?	1.Once 2.Twice 3.Equivalent to number of outdegree of the node 4. Equivalent to number of indegree of the node
In ER- Relational Mapping, Binary 1:1 Relationship types are mapped to ----------	1.The primary key of one side as foreign key of the other side and other attributes of the relationship as attributes to therelation 2.The primary keys of both sides as primary key of the relations 3.No changes required , relation is kept as such with associations 4.No new relation is created for relationship types
In Javascript, which of the following method is used to find out the character at a position in a string?	1.charPosition() 2.charAt() 3.CharacterAt() 4.CharAt()
In negative edge triggered flip flop, the transitions happen at	1.rising clock edge 2.falling clock edge 3.both rising and falling clock edge 4.never

In ORDBMS, When an object O is brought into memory, they check each oid contained in O and replace oids of in-memory objects by in-memory pointers to those objects. This concept refers to:	1.Object Identity 2.Pointer Swizzling 3.Method Caching 4.Pointer reference
In OSI model dialogue control and token management are responsibilities of ?	1.Network layer 2.Transport layer 3. Data link layer 4. Session Layer
In SQL, testing whether a subquery is empty is done using	1.DISTINCT 2.NULL 3.EXISTS 4.UNIQUE
In SQL, which command is used to issue multiple CREATE TABLE, CREATE VIEW and GRANT statements in a single transaction?	1. CREATE PACKAGE 2. CREATE SCHEMA 3. CREATE CLUSTER 4. all the above
In stop and wait ARQ, the sequence numbers are generated using	1.Modulo-2 arithmetic 2.Modulo-4 arithmetic 3.Modulo-8 arithmetic 4.Modulo-16 arithmetic
In TDM Data rate management is done by which of these strategies	1.Multilevel multiplexing 2.Multi-slot allocation 3.Pulse stuffing 4.all of the above
In the slow start phase of TCP congesting control algorithm, the size of the congestion window	1.Does not increase 2. Increases linearly 3. Increases quadratically 4. Increases exponentially
In transport layer, End to End delivery is the movement of data from	1.one station to the next station 2. one network to the other network 3.source to destination 4.one router to another router
In which part does the form validation should occur?	1.Client 2.Server 3.Both a and b 4. None of the mentioned
Information about a process is maintained in a _____.	1.Translation Lookaside Buffer 2.Stack 3.Process Control Block 4.Program Control Block
Insert into instructor values (10211, 'Smith', 'Biology', 66000); What type of statement is this ?	1.Query 2.DML 3.Relational 4.DDL
int unknown(int n) {	1.O(n^2)

int i, j, k = 0;
for (i = n/2; i <= n; i++)
for (j = 2; j <= n; j = j * 2)
k = k + n/2;
return k;
}
	2.O(n^2logn)
	3.O(n^3)
	4.O(nlogn)

Integer division in a C program results in	1.truncation 2.overflow 3.none of these 4.rounding
Let R be a relation. Which of the following comments about the relation R are correct?	1.If R is in 3 NF and if its every key is simple then R is in 5 NF 2.If R is in BCNF and if R has at least one simple sky, then R is in 4 NF. 3.If R is in 3 NF, and every key of R is simple, then R is in BCNF 4.R will necessarily have a composite key if R is in BCNF but not in 4 NF
Linked list are not suitable data structure of which one of the following problems ?	1.Insertion sort 2.Binary search 3.Radix sort 4.Polynomial manipulation
Linked lists are best suited	1. for relatively permanent collections of data 2. for the size of the structure and the data in the structure are constantly changing 3. for both of above situation 4. for none of above situation
List of all the units of the population is called _____	1.Sampling frame 2. Sampling size 3.Sampling demand 4.Sampling bias
Lock manager uses ---------- to store the identify of transaction locking a data item, the data item, lock mode and pointer to the next data item locked.	1.Lock table 2.Database Schema 3.System Catalog 4.Transaction Schedule
Loss in signal power as light travels down the fiber is called?	1. Attenuation 2. Propagation 3. Scattering 4. Interruption
Mail services are available to network users through the _____layer	1.Network 2.Datalink 3.Application 4.Session

main() is an example of	1.statement 2.header 3.library function 4.user-defined function
Math. round(-20.5)=?	1.20 2.-20 3.21 4.-21
Memory mapped displays	1.stores the display data as individual bits 2.uses ordinary memory to store the display data in character form 3.are utilised for high resolution graphics such as maps 4.are associated with electromechanical teleprinters
Mnemonic codes and variable names are used in	1.All of these 2.a high-level language 3.a machine language 4.an assembly language
More than one transaction can apply this lock on X for reading its value but no write lock can be applied on X by any other transaction. What is that lock?	1.Exclusive 2.shared 3.read lock 4.none
Multiplexing is used in _____	1.Packet switching 2.Circuit switching 3.Data switching 4.Datagram switching
Nested documents in the HTML can be done using	1.frame 2.nest 3.iframe 4.into
Normalisation of database is used to	1.Eliminate redundancy 2.Improve security 3. Provide Database Tuning 4.None of the Above
One of the header fields in an IP datagram is the Time to Live (TTL) field. Which of the following statements best explains the need for this field?	1.It can be used to priortize packets 2.It can be used to reduce delays 3.It can be used to optimize throughput 4.It can be used to prevent packet looping

OOPs
 	
Find the output of the following program?
 	
#include
#define pow(x) (x)*(x)*(x)
using namespace std;
 	
int main()
{
int a=3,b=3;
a=pow(b++)/b++;
	1.98 2.99 3.97 4.96

cout<<a<<b; return 0; }</a<<b;	
Parity bit is	1.an error-detecting code based on a summation operation performed on the bits to be checked. 2.a check bit appended to an array of binary digits to make the sum of all the binary digits. 3.a code in which each expression conforms to specific rules of construction, so that if certain errors occur in an expression, the resulting expression will not conform to the rules of construction and thus the presence of the errors in detected 4.the ratio of the number of data units in error to the total number of data units
Port C of 8255 can function independently as	1.input port 2.output port 3.either input or output ports 4.both input and output ports
Port number of DNS is	1. 53 2. 23 3. 25 4. 110
Programs tend to make memory accesses that are in proximity of previous access this is called	1.spatial locality 2.temporal locality 3.reference locality 4.access locality
PSW is saved in stack when there is a	1.Interrupt recognized 2.Execution of RST instruction 3.Execution of CALL instruction 4.All of these

public class MyRunnable implements Runnable
{
public void run()
{
// some code here
}
}
	1.new Thread(MyRunnable).run();
	2.new Thread(new MyRunnable()).start();
	3.new Runnable(MyRunnable).start();
	4.new MyRunnable().start();

which of these will create and start this thread?	
RAM type is justified as	1.SRAM is faster than DRAM 2.RAM consumes less power than DRAM3.SRAM values must be periodically refreshed 4.DRAM is used for cache memory
Re-balancing of AVL tree costs	1.O(1) 2. O(logn)b3. O(n) 4. O(n2)
Recursion uses more memory space than iteration because	1.it uses stack instead of queue. 2.every recursive call has to be stored. 3.both A & B are true. 4.None of the above are true.
Register renaming is done in pipe lined processors	1.as an alternative to register allocation at compile time 2.for efficient access to function parameters and local variables 3.to handle certain kinds of hazards 4.as part of address translation
Relations produced from an E-R model will always be	1.First normal form. 2.Second normal form. 3.Third normal form.4.Fourth normal form.
Rotation method of hashing is usually combined with other hashing techniques except	1.Modulo-division 2.Fold boundary 3.Fold shift 4.Mid-square hashing
Security and Privacy are less of an issue for devices in a _____ topology	1.Mesh 2. Tree 3. Bus 4.Star
Six channels, each with a 200 khz bandwidth are to be multiplexed together. what is the minimum bandwidth requirement if each guard band is 20Khz	1.1000 KHz 2.1100 KHz 3.1200 KHz 4.1300 KHz
Socket address is a combination of _____ and _____ addresses	1.IP and MAC 2.MAC and port 3.IP and port 4.mail and port
State the type of multitasking supported by OS when process switched its state from 'Running' to 'Ready' due to scheduling act.	1.multithreading 2.Preemptive 3.Non Preemptive 4.cooperative
Station A needs to send a message consisting of 9 packets to Station B using a	1.12 2.14

siding window (window size 3) and go-back-n error control strategy. All packets are ready and immediately available for transmission. If every 5th packet that A transmits gets lost (but no acks from B ever get lost), then what is the number of packets that A will transmit for sending the message to B ?	3.18 4.20
Station A uses 32 byte packets to transmit messages to Station B using a sliding window protocol. The round trip delay between A and B is 80 milliseconds and the bottleneck bankwidth on the path between aA and B is 128 kbps. What is the optimal window size that A should use ?	1.20 2.30 3.40 4.160
Structured programming involves	1.localization of errors 2.decentralization of program activity 3.functional modularization 4.centralized processing
Suggest one alternative method to perform multiplication in the computer ALU?	1.Repeated addition 2.logarithms 3.exponential calculations 4.reciprocal of division
Suggest one alternative to binary multiplication	1.Change the radix 2.Division 3 .Trignometric functions 4. Hyperbolic functions
Suppose that everyone in a group of N people wants to communicate secretly with N-1 others using symmetric key cryptographic system. The communication between any two persons should not be decodable by the others in the group. The number of keys required in the system as a whole to satisfy the confidentiality requirement is	1. N(N-1)/2 2. N(N-1) 3. 2N 4. (N-1)2
System catalogue is a system created database that describes	1.Database Objects 2. Data dictionary information 3.User access information 4.All of these
Television broadcast is an example of - transmission	1.Simplex 2.Half-duplex 3.Full-duplex 4.Automatic

The maintenance department of a manufacturing company is a/ an _____	1.Investment center 2.Profit center 3.Cost center 4.Segment
The 1-address instructions for a=b*c + d is	1.push b push c mul push d add 2.mul a, b, c add a, a, d 3.load b add d store a load c 4.load b mul c add d store a
The 8255 chip is an example of	1.Programmable peripheral interface 2.co-processor 3.substitute for 8085 processor 4.multimedia chip
The _____ is practiced most aggressively with unsought goods, goods that buyers normally do not think of buying, such as insurance, encyclopedias, and funeral plots.	1.Production concept 2.Product concept 3.Selling concept 4.Marketing concept
The address of a class B host is to be split into subnets with a 6-bit subnet number. What is the maximum number of subnets and the maximum number of hosts in each subnet?	1.62 subnets and 262142 hosts 2.64 subnets and 262142 hosts 3. 62 subnets and 1022 hosts 4.64 subnets and 1024 hosts
The address resolution protoc0l (ARP) is used for	1.Finding the IP address from the DNS 2. Finding the IP address of the default gateway 3. Finding the IP address that corresponds to a MAC address 4. Finding the MAC address that corresponds to an IP address
The address to the next instruction lies in	1.Program Counter 2.Instruction Register 3.Memory Buffer Register 4.Accumulator register

The addressing mode used in an instruction of the form ADD X Y, is _____.	1.Absolute 2.Indirect 3.None of these 4.Index
The algorithm design technique used in the quick sort algorithm is	1.Divide and Conquer 2.Backtracking 3.Dynamic Programming 4.Greedy Method
The alpahbet are represented in which format inside the computer?	1.ASCII format 2.binary number 3.hexadecimal number 4. decimal number
The base (or radix) of the number system such that the equation 312/20=13.1 holds is	**1.5** 2.3 3.1 4.6
The best index for range query is	1.Bucket Hash 2.Quad tree 3.B Tree 4.Binary Tree
The best normal form of relation scheme R (A, B, C, D) along with the set of functional dependencies F = {AB →C, AB → D, C → A, D → B} is	1.BCNF **2.3NF** 3.2NF 4.1NF
The C++ language is	1.A context free language **2.A context sensitive language** 3.A regular language 4.Parsable fully only by a Turing machine
The command which undo the transaction is	**1.Rollback** 2.Savepoint 3.Commit 4.Savepoint p
The concept of locking can be used to solve the problem of	**1.lost update 2.inconsistent data 3.uncommitted dependency** 4.deadlock
The daisy chaining prioirty gives least priority to which device?	1.The device accessed last in the chain 2.The first device in the chain 3.The device present at end of chain but inaccessible 4.The device in the middle of the chain
The data manipulation language (DML)	1.Refers to data using physical addresses 2.Cannot interfere with high-level programming language 3.None of these 4.Is used to define the physical characteristics of each record
The effective address of the following instruction is , MUL 5(R1,R2)	**1.5+R1+R2** 2.5+(R1*R2) 3.5+[R1]+[R2] 4.5*([R1]+[R2])

The father of relational database system is	1.Pascal 2.C.J.Date **3.Dr.Edgar F. Cord** 4.Non of these
The FD A → B , DB→ C implies	**1.DA→ C** 2. A → C 3. B → A 4. DB → A
The function f(x) = ab + a can be simplified as	1.ab **2. a** 3.a+b 4. ab+bc
The function scanf() reads	1.specifies the maximum value of a number 2.controls the size of type used to print numbers 3.controls the margins of the program listing **4.specifies how many character positions will be used for a number**
The history property belongs to which object?	1. Element **2.Window** 3.History 4.Location
The Hypertext Transfer Protocol (HTTP) is an _____ protocol	1.layer-2 2. layer-3 **3.application level** 4. physical level
The instructions which copy information from one location to another either in the processor's internal register set or in the external main memory are called	**1.Data transfer instructions** 2.Program control instructions 3 .Logical instructions 4.Input-output instructions
The Internet Control Message Protocol (ICMP)	1.allows gateways to send error a control messages to other gateways or hosts 2.provides communication between the Internet Protocol Software on one machine and the Internet Protocol Software on another 3.reports error conditions to the original source, the source must relate errors to individual application programs and take action to correct the problem **4.All of the above**
The interrupts are serviced using which of the folloiwng	1.**Interrupt service subroutine** 2.hardware circuits 3.microprocessor 4.gates
The jQuery AJAX methods .get(), .post(), and .ajax() all require which parameter to be supplied?	1. method **2. url** 3. data 4. headers

The language used in application programs to request data from the DBMS is referred to as the	1.query language 2.DDL **3.DML** 4.all of these
The library function exit() causes an exit from	**1.the function in which it occurs** 2.the block in which it occurs 3.the loop in which it occurs 4.None of these
The lifetime of flash memory is ----------	1.finite2.**infinite** 3.5000 updations 4.one formatting
The main difference between synchronous and asynchronous transmission is	**1.the clocking is derived from the data in synchronous transmission** 2.the clocking is mixed with the data in asynchronous transmission 3.the pulse height is different. 4.the bandwidth required is different
The method that performs the search-and-replace operation to strings for pattern matching is	**1. searchandreplace()** 2. add() 3. edit() 4.replace()
The minimum number of JK flip-flops required to construct a synchronous counter with the count sequence (0,0, 1, 1, 2, 2, 3, 3, 0, 0,…….) is	1.4 **2.3** 3.1 4.2
The minimum number of page frames that must be allocated to a running process in a virtual memory environment is determined by	**1.the instruction set architecture** 2.page size 3.physical memory size 4.number of processes in memory
The number of bits to represent 128 sets in direct mapped cache is	1.6 **2.7** 3.4 4.2
The number of boolean functions in n-variables is	1.2n **2.2^(2^n)** 3.2^n 4.4
The number of distinct symbols in radix-r is	2.r-1 3.r+1 4.10
The number of inputs, minterms in full adder is	**1. 3, 8** 2.3, 6 3. 4, 8 4. 2, 4
The number of outputs in n-input decoder is	1. 2n 2. **2^n** 3. n 4. 4

The number of squares in K-map of n-variables is	1. 2n 2. 2+n 3. **2^n** 2n+n
The O notation in asymptotic evaluation represents	1.Best case 2.Average case 3.Worst case **4.tight bound**
The output in sequential circuit depends on which of the following?	1.inputs only 2.logic zero **3.inputs and current state** 4.current state only
The output of combinational circuit depends on	**1.inputs only** 2.inputs and previous states 3.previous states only 4.logic one only

The output of the following program is
main()
{
int a = 5;
int b = 10;
cout << (a>b?a:b);
}
	1.a 2.Syntax error 3.0 **4.b**

The performance of cache memories is measured by	1.access time 2.hit ratio 3.average memory access time 4.miss penalty
The power consumed by full adder can be reduced by using which of the following?	1.Multiplexers 2.logic one 3.logic zero 4.adding another full adder circuit
The probability that a single bit will be in error on a typical public telephone line using 4800 bps modem is 10 to the power -3. If no error detection mechanism is used, the residual error rate for a communication line using 9-bit frames is approximately equal to	1.0.003 2.0.009 3.0.999 4.0.991
The process in which of the following states will be in secondary memory?	1.New, Wait/Block, suspend wait, Suspend ready 2.New, Ready, Wait/Block 3.wait/Block, suspend wait, Suspend ready 4.New, suspend wait, Suspend ready
The race condition in RS flip flop is rectified in which flip flop	1.D flip flop 2.T flip flop 3.JK flip flop 4.Master slave flip flop(ALSO APPLICABLE)

The recurrence relation that arises in relation with the complexity of binary search is	1.T(n)=T(n/2)+K 2.T(n)=2T(n/2)+K 3.T(n)=T(n/2)+log n 4.T(n)=T(n/2)+n
The regular expression to match any one character, not between the brackets is	1. […] 2. [^] 3.[^…] 4.[\D]
The relationship that exists within the same entity type is called as _____ relationship.	1. recursive 2. logical 3. Identifying 4. physical
The removal of process from active contention of CPU and reintroduce them into memory later is known as _____.	1.Interrupt 2.Swapping 3.Signal 4.Thread
The searching technique that takes O (1) time to find a data is	1.Linear Search 2.Binary Search 3.Hashing 4.Tree Search
The SQL statement SELECT SUBSTR('123456789', INSTR('abcabcabc','b'), 4) FROM EMP; prints	1.6789 2.2345 3.1234 4.456789
The subset of super key is a candidate key under what condition ?	1.No proper subset is a super key 2.Each subset is a super key 3.Subset is a super key 4.All subsets are super keys
The term scheme means:	1.the relationship service bereau 2.a map of overall structure of a database 3.a parent with no owners 4.two-dimentional table
The time factor when determining the efficiency of algorithm is measured by	1.Counting microseconds 2.Counting the number of key operations 3.Counting the number of statements 4.Counting the kilobytes of algorithm
The time required in worst case for search operation in binary tree is	1.O(1) 2.O(log n) 3.O(n) 4.O(log 2n)
The truth table X Y f(X,Y) 0 0 0	1. AND logic 2. OR logic 3. NAND logic 4. XOR logic ANS: NONE

0 1 0 1 0 1 1 1 1 represents the Boolean function	
The two's complement of 101011 is	1.101011 2.0101011 3.010101 4.100001
The ways to accessing html elements in java script	1.document.getElementName.value 2.document.getElementById("fname").value 3.document.form.fname.value 4.document.forms.fname.value
The width of the physical address on a machine is 40 bits. The width of the tag field in a 512 KB 8-way set associative cache is _____ bits	1.24 2. 20 3. 30 4. 40
The '$' present in the RegExp object is called a	1.character 2. matcher 3.metacharacter 4.metadata
The setTimeout() belongs to which object?	1. Element 2.Window 3. Location 4. None of the mentioned
This topology requires multipoint connection	1.star 2.Ring 3.Mesh 4.Bus
This user makes canned transaction	1.Casual 2.Naive 3.DBA 4.Sophisticated
To guarantee the detection of up to s errors in all cases, the minimum Hamming distance in a block code must be	1.s+1 2.2s+1 3.3s+1 4.s
To represent hierarchical relationship between elements, which data structure is suitable?	1.Deque 2.stack 3.tree 4.list
To retain all duplicate records, which of the following keyword is used	1.Union all 2.Union some 3.Intersect all 4.Intersect some
To which object does the location property belong?	1.Window 2.Position 3.Element 4. Location

Trace the output of the following code?
 	
#include
using namespace std;
int main()
{
int x=15,y=27;
x = y++ + x++;
y = ++y + ++x;
cout<<x+y++<<++x+y;
return 0;
}</x+y++<<++x+y;
	1.118118 2.118117 **3.117116** 4.119119

Trigger is a	1.Statement that enables to start any DBMS 2.Condition the system tests for the validity of the database user3.Statement that is executed by the user when debugging an application program 4.Statement that is executed automatically by the system as a side effect of a modification to the database
Truncate is _____ command	1.DDL 2.DML 3.DDL and DML 4.TCL
Two computers C1 and C2 are configured as follows. C1 has IP address 203. 197.2.53 and netmask 255.255. 128.0. C2 has IP address 203.197.75.201 and netmask 255.255.192.0. Which one of the following statements is true?	1.C1 and C2 both assume they are on the same network 2.C2 assumes C1 is on same network, but C1 assumes C2 is on a different network 3. C1 assumes C2 is on same network, but C2 assumes C1 is on a different network 4. C1 and C2 both assume they are on different networks
Uniform Resource Locator (URL), is a standard for specifying any kind of information on the	1.Server 2.IP 3.Internet 4.Web Page
User Datagram Protocol adds no additional reliability mechanisms except one which is optional. Identify that.	1. Parity checking 2. Acknowledgement 3. Re-transmission 4. Checksum
Using public key cryptography, X adds a digital signature σ to message M, encrypts , and sends it to Y, where it is decrypted. Which one of the following sequences of keys is used for the operations?	1. Encryption: X's private key followed by Y's public key; Decryption: Y's private key followed by X's public key 2. Encryption: X's private key followed by Y's private key; Decryption: X's public key followed by Y's public key 3. Encryption: X's public key followed by Y's private key; Decryption: Y's public key followed by X's private key

	4. Encryption: X's private key followed by Y's public key; Decryption: X's public key followed by Y's private key
Viruses are a network-issue	1.Performance 2.Reliability 3.Security 4.Management
We want to design a synchronous counter that counts the sequence 0-1-0-2-0-3 and then repeats. The minimum number of J-K flip-flops required to implement this counter is	1.1 2.2 3.3 4.4
What will be the value of c at the end of execution? public static void main(String args[]) { int a = 10, b = 2,c=0,d=0; int[] A = {1,2,3}; try { c=a/b; try { d = a/(a-a); d= A[1]+1; } catch(ArrayIndexOutOfBoundsException e) { System.out.println("Array - unreachable element "+e); } Finally { System.out.println("Finally block inside "); } } catch(Exception e) { System.out.println("Some Problem:"+e); b = 1; c = a/b; } finally { System.out.println("Finally block outside“) } System.out.println("after try/catch blocks"); System.out.println("Ans = " +c); }	1. 10 2. 5 3. 0 4. 1
What are the potential problems when a DBMS executes multiple transaction concurrently	1.the phantom problem 2.the unrepeatable problem 3.the dirty read problem 4.the lost update problem 5. All of the above

What are the three phases in virtual circuit switching?	1.Setup, data transfer, teardown 2.request-connect, data sending-acknowledgment, request-disconnect 3.send-connect, data transfer, request-disconnect 4.none of above
What data structure is used for depth first traversal of a graph	1.queue 2.Stack 3.list 4.graph
What does /[^(]* regular expression indicate ?	1.Match one or more characters that are not open paranthesis 2.Match zero or more characters that are open paranthesis 3.Match zero or more characters that are not open paranthesis 4.Match one or more characters that are open paranthesis

What does the code snippet given below do?
void fun1(struct node *head)
{ if(head==NULL) return;
fun1(head->next);
printf("%d",head->data);
}
	1.Prints all nodes of linked lists
	2.Prints all nodes of linked list in reverse order
	3.Prints alternate nodes of Linked List
	4.Prints alternate nodes in reverse order

What does the command XCHG in 8085 do?	1. Exchange AB with CD 2. Exchange A with B 3.Exchage D wtih E 4.Exchange H-L with D-E
What does the instruction INX H perform in 8085 microprocessor?	1.Increment register H by one 2.Increment register pair HL by one storing the result in same place 3.Increment register AH by one 4.Increment all registers by one
What does the location property represent?	1.Current DOM object 2.Current URL 3.Both a and b 4.None of the mentioned
What does the subexpression /java(script)?/ result in ?	1. It matches “java” followed by the optional “script” 2.It matches “java” followed by any number of “script” 3.It matches “java” followed by a minimum of one “script” 4.None of the mentioned
What does the XMLHttpRequest object accomplish in Ajax?	1. It's the programming language used to develop Ajax applications. 2. It provides a means of exchanging structured data between the Web server and client.

	3.It provides the ability to asynchronously exchange data between Web browsers and a Web server. 4. It provides the ability to mark up and style the display of Web-page text.
What happens to destination address in the header of a packet in a datagram network ?	1.Updated by every switching device on the way. 2.It remains same during the entire journey. 3.same till the gateway of the parent network and updated by gateway for the internet 4.none of these.
What happens when a pointer is deleted twice?	1.It cause an error 2.It cause a failure 3.It can abort the program4.It can cause a trap
What is 8254 used for?	1.programmable peripheral interface 2.programmable interval timer 3.coprocessor 4.to solve numerical problems
What is a trap?	1.External interrupt 2.Internal Interrupt 3.Software Interrupt 4.Error
What is maximum throughput for slotted ALOHA ?	1.0.386 when G=1/2 2.0.386 when G=1 3.0.038 when G=1 4.0.038 when G=1/2
What is the access point (AP) in wireless LAN?	1.device that allows wireless devices to connect to a wired network 2. wireless devices itself 3.both (a) and (b) 4.none of the mentioned
what is the advantage of selection sort over other sorting techniques?	1. It requires no additional storage space 2.It is scalable 3. It works best for inputs which are already sorted 4.It is faster than any other sorting technique
What is the architecture on which RISC systems are based?	1.Jump 2.Exponential 3.Load and Store 4.Add, Subtract
What is the code to be used to trim whitespaces ?	1.let trimmed = (l.trim() for (l in lines)); 2.let trimmed = (trim(l));3.let trimmed = l.trim(); 4.let trimmed = for(l in lines));
What is the correct syntax for referring to an external script called " abc.js"	1.script href=" abc.js" 2.script name=" abc.js" 3.script src=" abc.js" 4.None of the above

What is the data structure used for executing interrupt service subroutine ?	1. queue 2. array 3. stack 4. dummy variables
What is the difference between CSMA/CD and ALOHA?	1.frame transmission 2.Addition of persistence process 3.Jamming signal 4.All of the above
What is the JavaScript syntax to insert a comment that has more than one line?	1./* comment */ 2.// comment 3.// comment //
What is the loopback address?	1.127.0.0.1 2.255.0.0.0 3.255.255.0.0 4.255.255.255.255.
What is the machine that uses zero address instructions called?	1.RISC machine 2.CISC machine 3.Vector processor **4.Stack machine**
What is the minimum number of wires required for sending data over a serial communications links?	**1.2** 2.1 3.4 4. 3
What is the minimum size of ROM required to store the complete truth table of an 8-bit x 8-bit multiplier?	1.32 K x 16 bits **2.64 K x 16 bits** 3.16 K x 32 bits 4.64 K x 32 bits
What is the most essential purpose of parantheses in regular expressions ?	1.Define pattern matching techniques 2.Define subpatterns within the complete pattern 3.Define portion of strings in the regular expression **4.All of the mentioned**
What is the multiplexer used for?	**1.To implement many to one function** 2.To implement one to one function 3.To implement many to many function 4.To introduce delay
What is the number of distinct symbols in base-16 ?	1.8 2. 4 3. 6 **4. 16**
What is the number of maxterms in a function of n variables?	1.n 2.2n **3.2^n** 4. 2+n
What is the output of following JavaScript code	

```
<script type="text/javascript">
function x(){
var cst = "Chadha Software Technologies";
var pattern = /"SOFTWARE"/i;
document.write(cst.match(pattern));}</script>
```

1.Error 2.true 3.false 4.**null**

What is the output of following JavaScript code

```
<script>
var cst = "PHPKB Knowledge Base Software";
var result =cst.substring(7,8);
document.write(result);</script>
```

1.n 2.SOFTWARE 3.software 4.Error

What is the output of the following program?
 	
#include
using namespace std;
int main()
{
int x=20;
if(!(!x)&&x)
cout<<x;
else
{
x=10;
cout<<x;
return 0;
}}</x;
</x;
	1.20 2.10 3.1 4.0

What is the purpose of the assign() method?	1.Only loading **2.Loading of window and display** 3.Displays already present window 4.Unloading of window
What is the purpose of the mimeTypes property of a plug-in entry?	1.Contains MIME properties 2.Contains MIME sizes **3.Contains MIME types** 4.None of the mentioned
What is the purpose of the PSH flag in the TCP header?	1.Typically used to indicate end of message 2.Typically used to indicate beginning of message **3.Typically used to push the message** 4.Typically used to indicate stop of the message

What is the RDBMS technology for the number of attributes in a relation?	**1.Degree** 2. Relation 3. Attribute 4. cardinality
What is the RDBMS terminology for a row	**1. Tuple** 2. Relation 3.Attribute 4.Domain
What is the RDBMS terminology for a set of legal values that an attribute can have ?	1.Tuple 2.Relation 3.Entity **4. Domain**
What is the result of the following code snippet? window.location === document.location	1. False **2. True** 3.0 4.1
What is the result of the following operation Top (Push (S, X))	**1. X** 2. NULL 3. s 4. 0
What is the return type of the hash property?	1.Query string 2.Packets 3.String **4.Fragment identifier**

What is the return value of f(p,p) if the value of p is initialized to 5 before the call? Note that the first parameter is passed by reference, whereas the second parameter is passed by value.
int f (int &x, int c) {
c=c-1;
if (c-0) return 1;
x=x+1;
return f (x,c)*x;}
	1.3024 **2.6561** 3.55440 4.161051

What is the time complexity of inserting a node in a doubly linked list?	1.O(nlogn) 2.O(logn) 3. O(n) **4.O(1)**
What is the typical range of Ephemeral Ports?	1.1 to 80 2.1 to 1024 3.80 to 8080 **4.1024 to 65535**
What is Wired Equivalent Privacy (WEP) ?	1.security algorithm for ethernet **2.security algorithm for wireless networks** 3.security algorithm for usb communication

	4.none of the mentioned
What sever support AJAX ?	1.SMTP 2.WWW **3.HTTP** 4.BEEP
What should be used to point to a static class member?	**1.Normal pointer** 2.Smart pointer 3.None of the mentioned 4.Dynamic pointer
What statement is used to execute stored procedure in Java JDBC	**1. Call method execute() on a CallableStatement object** 2. Call method executeProcedure() on a Statement object 3. Call method execute() on a StoredProcedure object 4.Call method run() on a ProcedureCommand object
What type of join is needed when you wish to include rows that do not have matching values?	1.Equi-join 2.Natural join **3.Outer join** 4.All of the mentioned

What will be printed as the output of the following program?
public class testincr
{
public static void main(String args[])
{
int i = 0;
i = i++ + i;
System.out.println(" I = " +i);
}
}
	1.
	I = 0
	2.
	I = 1
	3.
	I = 2
	4.
	I = 3

What will be the output of the following program?
 	
#include
using namespace std;
 	
class x {
public:
int a;
x();
};
x::x() { a=10; cout<
	1.1010 **2.2020** 3.2010 4.1020

class b:public x {
public:
b();
};
b::b() { a=20; cout<
 	
int main ()
{
b temp;
return 0;
}	

What will be the result when non greedy repetition is used on the pattern /a+?b/ ?	**1.Matches the letter b preceded by the fewest number of a's possible** 2.Matches the letter b preceded by any number of a 3.Matches letter a preceded by letter b, in the stack order 4.None of the mentioned

What will be the values of x, m and n after the execution of the following statements?
int x, m, n;
m = 10;
n = 15;
x = ++m + n++;
	1.x=27, m=11, n=16 **2.x=26, m=11, n=16**
	3.x=27, m=10, n=15 4.x=25, m=10, n=15

What will happen if we call setTimeout() with a time of 0 ms?	1.Placed in stack **2.Placed in queue** 3.Will run continuously 4.None of the mentioned
What would be the result of the following statement in JavaScript using regular expression methods ?	1.Returns ["123""456""789"] **2.Returns ["123","456","789"]** 3.Returns [1,2,3,4,5,6,7,8,9] 4.Throws an exception
When a class extends the Thread class ,it should override ..... method of Thread class to start that thread.	1.init() **2.run(**) 3.start() 4.go()
When a network interface has a failure in its circuitry, it sends a continuous stream of frames causing the Ethernet LAN to enter a Collapse state. This condition is known as _____.	1.Scattering 2.Blocking **3.Jabbering** 4.Refreshing

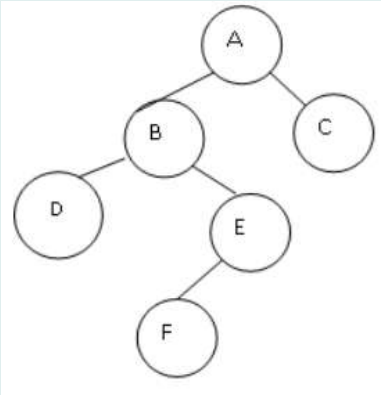
When a user views a page containing a JavaScript program, which machine actually executes the script?	1.The User's machine running a Web browser **2.The Web server** 3.A central machine deep within Netscape's corporate offices 4.both client and server
When does the top value of stack changes?	**1.Before Insertio**n 2.While checking underflow 3.At the time of deletion 4.After Deletion
When we use auto increment or auto decrement, which of the following is/are true 1) In both, the address is used to retrieve the operand and then the address gets altered. 2) In auto increment the operand is retrieved first and then the address altered. 3) Both of them can be used on general purpose registers as well as memory locations.	1.1,2,3 2.2 3.1,3 **4.2,3**
When you ping the loopback address, a packet is sent where?	1.On the network **2.Down through the layers of the IP architecture and then up the layers again** 3.Across the wire 4.through the loopback dongle
Where does the swap space reside?	1.RAM **2. Disk** 3. ROM 4. On-chip cache
Which method is used to assess an organization's training needs?	1.Rating scales 2.Questionnaireb3.Interviews 4.Considering current and projected changes
Which method is used to call the base class methods from the subclass?	1.extends 2.private 3.final **4. super**
Which among the following is not a property of the Location object?	1. protocol 2.host **3.hostee** 4.hostname
Which amongst the following refers to Absolute addressing mode	1.move R1, R2 2.move LOC1, LOC2 **3.move LOC1, R2** 4.move LOC2, R1

Which built-in method returns the length of the string?	**1.length();** 2.size(); 3.index(); 4.None of the above
Which cause a compiler error?	1.int[ ] scores = {3, 5, 7}; **2.int [ ][ ] scores = {2,7,6}, {9,3,45}**; 3.boolean results[ ] = new boolean [] {true, false, true}; 4.Integer results[ ] = {new Integer(3), new Integer(5), new Integer(8)};
Which circuit is used to perform address mapping in cache memories?	**1.decoder** 2.multiplexer 3.encoder 4.RAM
Which flip flop has the characterstic function Q(next) = input	1.JK flipflop 2.RS flipflop **3.D flipflop** 4.all flipflops
Which flip flop is suitable to store any number?	**1.JK flip flop** 2.D flip flop 3.RS flip flop 4.T flip flop
Which function among the following lets to register a function to be invoked once?	1.**setTimeout()** 2.setTotaltime() 3.setInterval() 4.None of the mentioned
Which function among the following lets to register a function to be invoked repeatedly after a certain time?	1.setTimeout() 2.setTotaltime() 3.**setInterval()** 4.None of the mentioned
Which is the handler method used to invoke when uncaught JavaScript exceptions occur?	1.onhalt 2.**onerror** 3.Both a and b 4.None of the mentioned
Which is the method that removes the current document from the browsing history before loading the new document?	1.modify() 2.assign() **3.replace()** 4.remove()
Which method is implemented in RAID 1?	1.Hamming code 2.distributed parity **3.mirroring** 4.block parity

Which method is used for loading the driver in Java JDBC	1.getDriver() method **2.class.forName()** 3.createStatement() 4.getConnection()
Which method receives the return value of setTimeout() to cancel future invocations?	1.clearTimeout() **2.clearInterval()** 3.clearSchedule() 4.None of the mentioned
Which normal form is considered adequate for relational database design?	1.BCNF 2.4 NF **3.3 NF** 4.2 NF
Which object serves as the global object at the top of the scope chain?	1.Hash 2.Property 3.Element **4.Window**
Which of following property returns the window object generated by a frame object	1.window **2.contentWindow** 3.contentDocument 4.windowFrame
Which of he following is used to input the entry and give the result in a variable in a procedure ?	1.Put and get 2. Get and put 3.Out and In **4.In and out**
Which of the folloiwng is fully functional ?	1.NAND **2.AND, OR** 3NOT 4. AND
Which of the following addressing modes has minimum number of memory access to access the operands? A. Indirect B. Direct C. Indexed D. Immediate	**1. D** 2. B 3. C 4. A
Which of the following algorithm is not stable?	1.Merge Sort **2.Quick Sort** 3.Bubble Sort 4.Insertion Sort
Which of the following are the properties of a plug-in entry?	1.name 2.filename 3.mimeTypes **4.All of the mentioned**

Which of the following assertions is false about the internet Protocol (IP) ?	1.It is possible for a computer to have multiple IP addresses 2.IP packets from the same source to the same destination can take different routes in the network 3. IP ensures that a packet is farwarded if it is unable to reach its destination within a given number of hopes **4.The packet source cannot set the route of an outgoing packets; the route is determined** only by the routing tables in the routers on the way.
Which of the following desired features are beyond the capability of relational algebra?	1.finding transitive closure 2.multiplication 3.aggregate computation **4.None of these**
Which of the following devices assigns IP address to devices connected to a network that uses TCP/IP?	1.DHCP Server 2.NIC 3.Gateway 4.Hub
Which of the following digits are known as the sub-address digits (for use by the user) of the Network User Address (NUA)?	1.5-7 2.1-4 3.8-12 4.13-14
Which of the following events will cause a thread to die?	1.The method sleep( ) is called 2.The method wait( ) is called 3.Execution of the start( ) method ends 4.Execution of the run( ) method ends
Which of the following function of Array object calls a function for each element in the array?	1.concat(); 2.every(); 3.filter(); 4.forEach();
Which of the following gives a logical structure of the database graphically ?	1.Entity-relationship diagram 2.Entity diagram 3.Database diagram 4.Architectural representation
Which of the following is a bit rate of an 8-PSK signal having 2500 Hz bandwidth ?	1.2500 bps 2.5000 bps 3.7500 bps 4.20000 BPS
Which of the following is a Non-linear data structure	1.List 2.Priority queue 3.Linked list 4.Circular Queue

Which of the following is an advantage of using database systems?	1.Security Enforcement 2.Avoidance of Redundancy 3.Reduced Inconsistency 4.All of these
Which of the following is correct in CIDR?	1.Class A includes Class B network 2.There are only two networks 3.There are high and low class networks 4.There is no concept of Class A, B, C networks
Which of the following is DMA controller?	1.8085 2.8255 3.8257 4.8088
Which of the following is not a reason XML gained popularity as a data interchange format for AJAX?	1.It has been around a while and libraries exist for many languages to work with it 2.It can be navigated using JavaScript DOM methods. 3.It is extensible, allowing it to be adapted to virtually any application. 4.It is concise and simple to use.
Which of the following is not an application of priority queue?	1.Huffman codes 2. Interrupt handling in operating system 3.Undo operation in text editors 4.Bayesian spam filter
Which of the following is not an internetworking device?	1.Bridge 2.Gateway 3.Router 4Filter
Which of the following is not characteristics of a relational database model	1.Tables 2.Treelike structure 3.Complex logical relationships 4.Records
Which of the following is one of the fundamental features of JavaScript?	1.Single-threaded 2. Multi-threaded 3. Both a and b 4. None of the mentioned
Which of the following is the child object of the JavaScript navigator?	1.Navicat 2.Plugins 3.NetRight 4.None of the mentioned
Which of the following is the correct way for writing JavaScript array?	1.var salaries = new Array(1:39438, 2:39839 3:83729) 2.var salaries = new (Array1=39438, Array 2=39839 Array 3=83729) 3.var salaries = new Array(39438, 39839,83729) 4.var salaries = new Array() values = 39438, 39839 83729
Which of the following is true for the given tree?	1. a complete binary tree 2. Strict Binary tree

	3. Full binary tree 4. none
Which of the following is useful in implementing quick sort?	1.Stack 2.Set 3.List 4.Queue
Which of the following raid levels provides maximum usable disk space?	1.RAID 1 2.RAID 0 3.RAID 5 4.RAID 6
Which of the following relational algebra operations do not require the participating tables to be union-compatible?	1.Union 2.Intersection 3.Difference 4.Join
Which of the following scan() statements is true?	1.scanf(%d□,&int-var-name); 2.scanf(%d &sum□); 3.scanf(%f□,float-var-name); 4.scanf(%d□,&number);
Which of the following statement is correct about destructors?	1.A destructor has void return type. 2.A destructor has integer return type. 3.A destructors return type is always same as that of main() 4.A destructor has no return type.
Which of the following statement on the view concept in SQL is invalid?	1.All views are not updateable 2.The views may be referenced in an SQL statement whenever tables are referenced. 3.The views are instantiated at the time they are referenced and not when they are defined. 4.The definition of a view should not have GROUP BY clause in it.
Which of the following technique is used for fragment?	1.a technique used in best-effort delivery systems to avoid endlessly looping packets 2.a technique used by protocols in which a lower level protocol accepts a message from a higher level protocol and places it in the data portion of the low level frame

	3.one of the pieces that results when an IP gateway divides an IP datagram into smaller pieces for transmission across a network that cannot handle the original datagram size 4.All of the above
Which of the following technique is used for Time-To-Line (TTL)?	1.a technique used in best-effort delivery system to avoid endlessly looping packets. 2.a technique used by protocols in which a lower level protocol accepts a message from a higher level protocol and places it in the data portion of the low level frame 3.One of the pieces that results when an IP gateway divides an IP datagram into smaller pieces for transmission across a network that cannot handle the original datagram size. 4.All of the above
Which of the following type casts will convert an Integer variable named amount to a Double type?	1.int to double(amount) 2.int (amount) to double 3.(int to double) amount 4.(double) amount
Which of the process transition is invalid?	1.Run->Terminate 2.Wait/ Block->Run 3.Suspend wait->Suspend ready 4.Run->Ready
Which of these is correct for synchronous Time Division Multiplexing	1.Data rate of link is n times faster and the unit duration is n times longer 2.Data rate of link is n times slower and the unit duration is n times shorter 3.Data rate of link is n times slower and the unit duration is n times longer 4.Data rate of link is n times faster and the unit duration is n times shorter
Which of these is true for go-back-N protocol, if m is the size of sequence number field	1.size of send window must be less than 2m and size of receiver window must be 1 2.size of send window must be greater than 2m and size of receiver window must be 1 3.size of send window must be less than 2m and size of receiver window must be 2m 4.size of send window must be greater than 2m and size of receiver window must be 2m
Which one is the first high level programming language	1.C 2.COBOL 3.FORTRAN 4.C++
Which one of the following event is not possible in wireless LAN.	1.collision detection 2.Acknowledgement of data frames 3.multi-mode data transmission 4.none of the mentioned

Which one of the following is not true?	1.A class containing abstract methods is called an abstract class. 2.Abstract methods should be implemented in the derived class. 3.An abstract class cannot have non-abstract methods. 4.A class must be qualified as 'abstract' class, if it contains one abstract method.
Which one of the following statements is false?	1.In JavaScript, identifier names are case sensitive 2.JavaScript code can appear in both and sections 3.**External JavaScript file can be linked using the link element** 4.JavaScript can be turned off by the users concerning of security
Which one of these lists contains only Java programming language keywords?	**1.class, if, void, long, Int, continue** 2.goto, instanceof, native, finally, default, throws 3.try, virtual, throw, final, volatile, transient 4.strictfp, constant, super, implements, do
Which one of these technologies is NOT used in AJAX?	1.CSS 2.DOM 3.DHTML 4.FLASH
Which property is used to check whether AJAX request has been completed.	1.open 2.ready 3.onreadystate 4.readystate
Which property is used to obtain browser vendor and version information?	1.modal 2.version 3.browser 4.navigator
Which protocol does Ping use?	1.TCP 2.ARP 3.ICMP 4.Bootp
Which relationship is used to represent a specialization entity ?	1.WHOIS 2.AIS 3.ONIS 4.ISA
Which statement about the name and id attributes of form fields is false?	1.the id attribute is what is sent when the form is submitted. 2.the name attribute can be used to access the field using getElementsByName(). 3.it is customary to give form fields both attributes, with the same value if possible 4.either attribute may be omitted if it is unused.

Which Topology features a point to point line configuration?	1.Mesh 2.Ring 3.Star 4.All three
Which two are valid constructors for Thread? a.) Thread(Runnable r, String name) b.) Thread() c.) Thread(int priority) d.) Thread(Runnable r, ThreadGroup g) e.) Thread(Runnable r, int priority)	1.a & b 2.a & c 3.d & e 4.b & c
Which two files are used during operation of the DBMS?	1.Query languages and utilities 2.Data dictionary and query language 3.DML and query language 4.Data dictionary and transaction log
Which two RAID types use parity for data protection?	1.RAID 1 2.RAID 4 3.RAID 1+0 4.RAID 5
which type of EM waves are used for unicast communication such as cellular telephones, satellite networks and wireless LANS.	1.Microwaves 2.Radiowaves 3.Infrared 4.Lightwaves
Which type of error detection uses binary division?	1.Parity 2. Longitudinal redundancy checking 3.Checksum checking 4.Cyclic redundancy checking
Which Web browser is the least optimized for Microsoft's version of AJAX?	1.Firefox 2. Opera 3.Safari 4.Internet Explorer
While booting the system the IP address is	1.1.1.1.1 2.1.1.0.0 3.0.0.1.1 4.0.0.0.0
Who is responsible for correlating the different perspectives of distinct users?	1. DBA 2. Database Designers 3.System Analysts 4. Application Programmers
Why is the replace() method better than the assign() method?	1.Reliable 2.Highly manageable 3.More efficient 4.Handles unconditional loading

Why we need to a binary tree which is height balanced?	1.to avoid formation of skew trees 2.to save memory 3. to attain faster memory access 4.to simplify storing
Working of the WAN generally involves	1.telephone lines 2.microwaves 3.satellites 4.All of the above
You are trying to decide which type of network you will use at your office, and you want the type that will provide communication and avoid collisions on the cable. Which of the following is the best choice?	1.Token-Ring 2.CSMA/CD 3.Ethernet 4.CSMA/CA
You are working with a network that has the network ID 172.16.0.0, and you require 25 subnets for your company and an additional 30 for the company that will merge with you within a month. Each network will contain approximately 600 nodes. What subnet mask should you assign?	1.255.255.192.0 2.255.255.224.0 3.255,255.248.0 **4.255.255.252.0**
You are working with a network that is 172.16.0.0 and would like to support 600 hosts per subnet. What subnet mask should you use?	1.255.255.192.0 2.255.255.224.0 **3.255.255.252.0** 4.255.255.248.0
You have 10 users plugged into a hub running 10Mbps half-duplex. There is a server connected to the switch running 10Mbps half-duplex as well. How much bandwidth does each host have to the server?	1.100 kbps 2.10 kbps 3.1 Mbps 4.2 Mbps
You have an array of n elements. Suppose you implement quicksort by always choosing the central element of the array as the pivot. Then the tightest upper bound for the worst case performance is	1.O(n2) 2.O(nLogn) 3.Θ(nLogn) 4.O(n3)
…… is very useful in situation when data have to stored and then retrieved in reverse order.	1. Stack 2. Queue 3. List 4.

	Linked list

ITE204-COMPUTER ARCHITECTURE AND ORGANIZATION

MCQ

1. The average time required to reach a storage location in memory and obtain its contents is called the
   (A) seek time (B) turnaround time
   (C) access time (D) transfer time

   Answer : A

2. The idea of memory hierarchy is based
   (A) on the property of locality of reference (B) on the heuristic 90-10 rule
   (C) on the fact that references generally tend to cluster (D) all of the above

   Answer : A

3. Write Through technique is used in which memory for updating the data
   (A) Virtual memory (B) Main memory
   (C) Auxiliary memory (D) Cache memory

   Answer :D

4. what is the transfer rate for non random access memory?
   a) Tn=Ta+(N/R) b) Tn=Ta-(N/R) c) Tn=Ta*(N/R) d) none

   answer : A

5. Memory unit accessed by content is called
   (A) Read only memory (B) Programmable Memory
   (C) Virtual Memory (D) Associative Memory
   Answer :D

6. In a fixed point binary division algorithm, if E is equal to zero, what updation is done in Qn and A registers
   a) Qn=0, A=A+B, b) Qn=1,A=A-B
   c) Qn=NULL, A=A d) Qn=NUL,A=0
   answer : A

7. How to calculate the total capacity of the internal memory?
   a) Total memory= Number of words in memory * word length
   b) Total memory= Number of words in memory / word length
   c) Total memory= Number of words in memory - word length
   d) number of words+ word length.
   Answer: A

8. The performance of cache memory is frequently measured in terms of a quantity called
a) hit ratio b) miss ratio
c) average ratio d) ratio
answer : A

9. The _____ that enables one to make a comparison of desired bit locations within a word for specific match and to do this for all words simultaneously .
a**)** Direct access b) indirect access
c) associative access d) random

answer : A

11. In DMA transfers, the required signals and addresses are given by the
a) Processor
b) Device drivers
c) DMA controllers
d) The program itself
Answer: C

12. After the complition of the DMA transfer the processor is notified by
a) Acknowledge signal
b) Interrupt signal
c) WMFC signal
answer :B

13. The techinique whereby the DMA controller steals the access cycles of the processor to operate is called
a) Fast conning
b) Memory Con
c) Cycle stealing
d) Memory stealing

Answer:C

14. To overcome the conflict over the possession of the BUS we use _____
a) Optimizers
b) BUS arbitrators
c) Multiple BUS structure

Answer : B

15. Which one of these is characteristic of RAID 5?
a. Distributed parity
b. No Parity
c. All parity in a single disk
d. Double Parity

Answer : A

16. The Centralised BUS arbitration is similar to _____ interrupt circuit
    a) Priority
    b) Parallel
    c) Single
    d) Daisy chain

Answer :D

17. Which of the following raid levels provides maximum usable disk space?
    a. RAID 1
    b. RAID 0
    c. RAID 5
    d. RAID 6

    Answer :B

18. An array of disks is more likely to fail compared to a single disk. How is it that RAID arrays still manage to provide more data protection compared to a single disk?
    a. Using either mirroring or striping
    b. Using either mirroring or parity
    c. Using better quality disks
    d. Using dedicated hardware

    Answer:B

19. Which level of RAID refers to disk mirroring with block striping?
    a) RAID level 1
    b) RAID level 2
    c) RAID level 0
    d) RAID level 3

Answer:A

20. Which two RAID types use parity for data protection?
    a. RAID 1
    b. RAID 4
    c. RAID 1+ 0
    d. RAID 5

Answer: b,d

Comprehensive Examinations- Computer Architecture

1. Consider the following sequence of micro–operations

MBR ← PC
MAR ← X
PC ←Y
Memory ←MBR

Which one of the following is a possible operation performed by this sequence?
(A) Instruction fetch (B) Operand fetch (C) Conditional branch (D) Initiation of interrupt service
ANSWER: D

2. The load instruction is mostly used to designate a transfer from memory to a processor register known as____.

A. Accumulator B. Instruction Register
C. Program counter D. Memory address Register
ANSWER: A

3. For computers based on three - address instruction formats, each address field can be used to specify which of the following:
S1: A memory operand
S2: A processor register
S3: An implied accumulator registers

(A) Either S1 or S2
(B) Either S2 or S3
(C) Only S2 and S3
(D) All of S1, S2 and S3
ANSWER: A

4. The addressing mode used in an instruction of the form ADD X Y, is _____.

A. Absolute B. indirect
C. index D. none of these
ANSWER: C

5. The effective address of the following instruction is , MUL 5(R1,R2)
a) 5+R1+R2
b) 5+(R1*R2)
c) 5+[R1]+[R2]
d) 5*([R1]+[R2])

ANSWER: C

6. When we use auto increment or auto decrement, which of the following is/are true
1) In both, the address is used to retrieve the operand and then the address gets altered.

2) In auto increment the operand is retrieved first and then the address altered.
3) Both of them can be used on general purpose registers as well as memory locations.

a) 1,2,3
b) 2
c) 1,3
d) 2,3

ANSWER: D

7. The load instruction is mostly used to designate a transfer from memory to a processor register known as____.

A. Accumulator B. Instruction Register
C. Program counter D. Memory address Register
ANSWER: A

8. Logic X-OR operation of (4ACO)H & (B53F)H results _____.

A. AACB B. 0000
C. FFFF D. ABCD
ANSWER: C

9. Generally Dynamic RAM is used as main memory in a computer system as it_____.

A. Consumes less power B. has higher speed
C. has lower cell density D. needs refreshing circuitry
ANSWER: B

10. If the main memory is of 8K bytes and the cache memory is of 2K words. It uses associative mapping. Then each word of cache memory shall be_____.

A. 11 bits B. 21 bits
C. 16 bits D. 20 bits
ANSWER: C

11. A system uses 3 page frames for storing process pages in main memory. It uses the Least Recently Used (LRU) page replacement policy. Assume that all the page frames are initially empty. What is the total number of page faults that will occur while processing the page reference string given below?

4, 7, 6, 1, 7, 6, 1, 2, 7, 2

A. 4 B. 6 C. 2 D. 7

ANSWER: B

12. A computer has a 256 KByte, 4-way set associative, write back data cache with block size of 32 Bytes. The processor sends 32 bit addresses to the cache controller.Each cache tag directory entry contains, in addition to address tag, 2 valid bits, 1 modified bit and 1 replacement bit.The size of the cache tag directory is

(A) 160 Kbits (B) 136 Kbits (C) 40 Kbits (D) 32 Kbits

ANSWER: A

13. Cache memory works on the principle of_____.

A. Locality of data . Locality of memory
C. Locality of reference D. Locality of reference & memory

ANSWER: C

14. When process requests for a DMA transfer ,
    a) Then the process is temporarily suspended
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ANSWER: D

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    a) Processor
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16. From amongst the following given scenarios determine the right one to justify interrupt mode of data transfer
    i) Bulk transfer of several kilo-byte
    ii) Moderately large data transfer of more than 1kb
    iii) Short events like mouse action
    iv) Keyboard inputs
    a) i and ii
    b) ii
    c) i,ii and iv
    d) iv

ANSWER: D

17. Which one of the following is true with regard to a CPU having a single interrupt request line and single interrupt grant line…??
    i) Neither vectored nor multiple interrupting devices is possible.
    ii) Vectored interrupts is not possible but multiple interrupting devices is possible.
    iii) Vectored interrupts is possible and multiple interrupting devices is not possible.
    iv) Both vectored and multiple interrupting devices is possible.
    a) iii
    b) i,iv
    c) ii,iii
    d) iii,iv

ANSWER: A

18. What is the unique characteristic of RAID 6 (Choose one)?
    a. Distributed Parity
    b. Striping
    c. Two independent distributed parity
    d. Mirroring

ANSWER: C

19. Which of the following combinations can support RAID 05?
    a. 2 sets with 3 disks each
    b. 3 sets with 2 disks each
    c. 4 sets with 3 disks each
    d. 4 sets with 1 disk each

ANSWER: B AND C

20. The minimum duration of the active low interrupt pulse for being sensed without being lost must be
    a) greater than one machine cycle
    b) equal to one machine cycle
    c) greater than 2 machine cycles
    d) equal to 2 machine cycles

ANSWER: B

21. If two interrupts, of higher priority and lower priority occur simultaneously, then the service provided is for
    a) interrupt of lower priority
    b) interrupt of higher priority
    c) both the interrupts
    d) none of the mentioned

ANSWER: B

22. The data-in register of I/O port is
    a) read by host to get input
    b) read by controller to get input
    c) written by host to send output
    d) written by host to start a command

ANSWER: A

23. Which one of the following connects high-speed high-bandwidth device to memory subsystem and CPU.
    a) expansion bus
    b) PCI bus
    c) SCSI bus
    d) none of the mentioned

ANSWER: A

24. _____ register keeps track of the instructions stored in program stored in

memory.
(A)AR (Address Register) (B) XR (Index Register) (C) PC (Program Counter)
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25. A group of bits that tell the computer to perform a specific operation is known as

(A) Instruction code (B) Micro-operation (C) Accumulator (D) Register
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26.In a computer architecture a BUS is _____

A. A collection of computers

B. A collection of wires

C. A collection of shared communication wires

D. A software to transport data

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27.A RAM chip has a capacity of 1024 words of 8 bits each (1K×8). The number of 2× 4 decoders with enable line needed to construct a 16K×16 RAM from1K×8 RAM is

A. 4

B. 5

C. 6

D. 7

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28.What is the minimum number of NAND gates required to implement a 2-input EXCLUSIVE-OR function without using any other logic gate?

A. 3

B. 4

C. 5

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29.What are the states of the Auxiliary Carry (AC) and Carry Flag (CF) after executing the following 8085 program? MVI H, 5DH; MIV L, 6BH; MOV A, H; ADD L

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31.How many 8-bit characters can be transmitted per second over a 9600 baud serial communication link using asynchronous mode of transmission with one start bit, eight data bits, two stop bits, and one parity bit?

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C. 876

D. 1200

ANSWER: B

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D. 1200

ANSWER: B

Course : Computer Architecture

Addressing modes

1. Registers R1 and R2 of a computer contain the decimal values 1200 and 4600 respectively. What is the effective address of the memory operand for

   the following instructions

   (i) Load 20(R1), R5

   (ii) Subtract R1, R5

   (A) 1220 and 5830 **(B)** 5830 and 4599

   (C) 1200 and 4599 **(D)** 1220 and 1200

   Ans: D

2. Which amongst the following refers to Absolute addressing mode

   (A) move R1, R2 **(B)** move LOC1, LOC2

   (C) move LOC1, R2 **(D)** move LOC2, R1

   Ans: B

3. Computers use addressing mode techniques for _____.
   (A) Giving programming versatility to the user by providing facilities as pointers

to memory counters for loop control

(B) To reduce no. of bits in the field of instruction

(C) Specifying rules for modifying or interpreting address field of the instruction

(D) All the above

Ans: D

4. Which of the following address modes calculate the effective address as
address part of the instruction) + (content of CPU register)

(A) Direct Address Mode **(B)** Indirect Address mode.

(C) Relative address Mode. **(D)** Indexed address Mode.

Ans: C / D

5. A Program Counter contains a number 825 and address part of the instruction contains the number 24. The effective address in the relative address mode, when an instruction is read from the memory is

(A) 849. **(B)** 850.

(C) 801. **(D)** 802.

Ans: B

6. In which addressing mode the operand is given explicitly in the instruction

(A) Absolute. **(B)** Immediate.

(C) Indirect. **(D)** Direct.

Ans: B

7. Content of the program counter is added to the address part of the instruction in order to obtain the effective address is called.

(A) relative address mode. **(B)** index addressing mode.

(C) register mode. **(D)** implied mode.

Ans: A

8. Word 20 contains 40

Word 30 contains 50

Word 40 contains 60

Word 50 contains 70

Which of the following instructions does not, load 60 into the Accumulator

(A) Load immediate 60

(B) Load direct 30

(C) Load indirect 20

(D) both (A) & (C)

Ans: B

Von-Neumann architecture

9. Which of the following is not a part of instruction cycle?

(A) Fetch phase **(B)** Decode phase

(C) Wait Phase **(D)** Execute phase

Ans: C

10. After fetching the instruction from the memory, the binary code of the instruction goes to

(A) Program counter**.** **(B)** Instruction registers.

(C) Accumulator. **(D)** Instruction pointer.

Ans: B

11. What is the content of Stack Pointer (SP)?

(A) Address of the current instruction

(B) Address of the next instruction

(C) Address of the top element of the stack

(D) Size of the stack.

Ans: C

12. The address to the next instruction lies in

(A) Program Counter **(B)** Instruction Register

(C) Memory Buffer Register **(D)** Accumulator register

Ans: A

13. _____ register keeps track of the instructions stored in program stored in memory.

(A) AR (Address Register) (B) XR (Index Register)

(C) PC (Program Counter) (D) AC (Accumulator)

Ans: C

14. When an instruction is read from the memory, it is called

(A) Memory Read cycle (B) Fetch cycle

(C) Instruction cycle (D) Memory write cycle

Ans: B

15. What is the content of Stack Pointer (SP)?

(A) Address of the current instruction

(B) Address of the next instruction

(C) Address of the top element of the stack

(D) Size of the stack.

Ans: C

Instruction formats

16. The following segment of instructions belong to

```
ADD   R1
MOV   R1, R2
MUL   R3
OUT   03H
```

(A) General Register Organization CPU

(B) Accumulator Type CPU

(C) Stack Type CPU

(D) information not sufficient to decide

Ans: A

17. A Stack-organized Computer uses instruction of

(A) Indirect addressing (B) Two-addressing

(C) Zero addressing (D) Index addressing

Ans: C

18. A group of bits that tell the computer to perform a specific operation is known as

(A) Instruction code **(B)** Micro-operation

(C) Accumulator **(D)** Register

Ans: A

19. MRI indicates

(A) Memory Reference Information.

(B) Memory Reference Instruction.

(C) Memory Registers Instruction.

(D) Memory Register information

Ans: B

20. Zero address instruction format is used for

(A) RISC architecture.

(B) CISC architecture.

(C) Von-Neuman architecture.

(D) Stack-organized architecture.

Ans: D

Instruction classifications

21. The load instruction is mostly used to designate a transfer from memory to a processor register known as

(A) Accumulator **(B)** Instruction Register

(C) Program counter **(D)** Memory address Register

Ans: A

22. The instructions which copy information from one location to another either in the processor's internal register set or in the external main memory are called

(A) Data transfer instructions. **(B)** Program control instructions.

(C) Input-output instructions. **(D)** Logical instructions.

Ans: A

Main memory

23. Generally Dynamic RAM is used as main memory in a computer system as it

(A) Consumes less power **(B)** has higher speed

(B) has lower cell density **(D)** needs refreshing circuitary

Ans:

24. Dynamic RAM consumes _____ Power and _____ then the Static RAM.

(A)more, faster **(B)** more, slower

(A) less, slower **(D)** less, faster

Ans.

25. Which of the memory holds the information when the Power Supply is switched off?

(A)Static RAM (B) Dynamic RAM

(C) EEROM (D) None of the above

Ans.

26. Which of the memory holds the information when the Power Supply is switched off?

A. Static RAM
B. Dynamic RAM
C. EEROM
D. None of the above

Ans:

27. Information is written to the ____ chips by the manufacturer and this information cannot be changed.

A. SROM
B. Shadow RAM
C. DRAM
D. ROM

Ans:

28. An ____ chip is a special ROM chip that the manufacturer can reprogram by using a speacil programming device that uses ultraviolet light.

A. DDRAM
B. ROM
C. EPROM
D. VRAM

Ans:

29. You can update the software on the ____ by running a speacil software setup program provided by the manufacturer.

A. EEPROM
B. POST
C. EPROM
D. BIOS

Ans:

30. What characteristic of RAM memory makes it not suitable for permanent storage?
(A) too slow **(B)** unreliable
(C) it is volatile **(D)** too bulky

Ans:

31. The access method used for magnetic tape is_____
a) Direct b) Random c) Sequential d) None of the above

Cache memory

32. Cache memory sits between
(A) CPU and RAM **(B)** RAM and ROM
(D) CPU and Hard Disk **(D)** None of these

Ans:

33. The idea of cache memory is based
(A) on the property of locality of reference
(B) on the heuristic 90-10 rule
(C) on the fact that references generally tend to cluster
(D) all of the above

Ans:

34. Write Through technique is used in which memory for updating the data
(A) Virtual memory **(C)** Main memory
(B) Auxiliary memory **(D)** Cache memory

Ans:

35. What is called the configuration where when the CPU stores a data on the memory cache this data isn't immediately written to the RAM?
A. Write Back
B. Write Through
C. Write Out
D. Write In

E. None of the above

Ans:

36. When the CPU needs a certain data and it is not loaded in the memory cache and the CPU needs to load this data directly from RAM we say that there was a:

A. Transmission delay
B. Rotational delay
C. Cache hit
D. Cache miss
E. None of the above

Ans:

37. Which cache mapping function does not require a replacement algorithm?

A. Direct mapping
B. Set associative mapping
C. Fully associative mapping

Ans:

38. Cache memory works on the principle of

(A) Locality of data.

(B) Locality of reference

(C) Locality of memory

(C) Locality of reference & memory

Ans.

39. Which of the following memories has the shortest access times?

A. Cache memory
B. Magnetic bubble memory
C. Magnetic core memory
D. RAM

Ans:

40. Which is the fastest cache mapping function?

A. Direct mapping
B. Set associative mapping
C. Fully associative mapping

Ans:

41. The performance of cache memory is frequently measured in terms of a quantity called
    a. Miss ratio. **(B)** Hit ratio.
    b. Latency ratio. **(D)** Read ratio.

Ans:

42. The method for updating the main memory as soon as a word is removed from the Cache is called

    A. Write-through
    B. write-back
    C. protected write
    D. cache-write

Ans:

43. How many different addresses are required by the memory that contain 16K words?
    (A)16,380 (B) 16,382

    (C)16,384 (D) 16,386

Ans:

44. Which cache write mechanism allows an updated memory location in the cache to remain out of date in memory until the block containing the updated memory location is replaced in the cache?
    A. Write through
    B. Write back
    C. Both
    D. Neither

Ans:

Virtual memory

45. In a virtual memory system, the addresses used by the programmer belongs to
    (A) memory space. (C) physical addresses.

    (B) address space. (D) main memory address.

Ans:

46. A page fault

(A) Occurs when there is an error in a specific page.
(B) Occurs when a program accesses a page of main memory.

(C) Occurs when a program accesses a page not currently in main memory.
(D) Occurs when a program accesses a page belonging to another program.

Ans:

I/O devices; I/O fundamentals, DMA

47. Which disk is one of the important I/O devices and its most commonly used as permanent storage devices in any processor:
    (A) Hard disk
    (B) Optical disk
    (C) Magneto disk
    (D) Magneto Optical disk
    ANS:

48. A monitor consists of :
    (A) ARU
    (B) BRT
    (C) CRT
    (D) ARU
    ANS:

49. LCD stands for:
    (A) Liquid crystal display
    (B) Liquid catalog display
    (C) Liquid crystal data
    (D) Liquid code display
    ANS:

50. Printer is a:
    (A) Hardcopy
    (B) Softcopy
    (C) Both a & b
    (D) None of these
    ANS:

51. _____interface is an entity that controls data transfer from external device, main memory and or CPU registers:
(A) I/O interface
(B) CPU interface
(C) Input interface
(D) Output interface
ANS:

52. To resolve problems of I/O devices there is a special hardware component between CPU and_____ to supervise and synchronize all input output transfers:
(A) Software
(B) Hardware
(C) Peripheral
(D) None of these
ANS:

53. I/O modules are designed with aims to:
(A) Achieve device independence
(B) Handle errors
(C) Speed up transfer of data
(D) Handle deadlocks
(E) Enable multi-user systems to use dedicated device
(F) All of these
ANS:

54. In devices 2 status reporting signals are:
(A) BUSY
(B) READY
(C) Both a & b
(D) None of these

55. _____is a single address space for storing both memory and I/O devices:
(A) Memory-mapped I/O
(B) Isolated I/O
(C) Separate I/O
(D) Optimum I/O

56. Following are the disadvantages of memory-mapped I/O are:
(A) Valuable memory address space used up
(B) I/O module register treated as memory addresses
(C) Same machine intersection used to access both memory and I/O device
(D) All of these

57. Two ways in which computer buses can communicate with memory in case of I/O devices by using:
    (A) Separate buses for memory and I/O device
    (B) Common bus for memory and I/O device
    (C) both a & b
    (D) none of these

58. There are 2 ways in which addressing can be done in memory and I/O device:
    (A) Isolated I/O
    (B) Memory-mapped I/O
    (C) Both a & b
    (D) None of these

59. I/O module must recognize a_____ address for each peripheral it controls:
    (A) Long
    (B) Same
    (C) Unique
    (D) Bigger

60. Each interaction b/w CPU and I/O module involves:
    (A) Bus arbitration
    (B) Bus revolution
    (C) Data bus
    (D) Control signals

61. Which are 4 types of commands received by an interface:
    (A) Control, status, data output, data input
    (B) Only data input
    (C) Control, flag, data output, address arbitration
    (D) Data input, data output, status bit, decoder

62. 2 control lines in I/O interface is:
    (A) RD, WR
    (B) RD,DATA
    (C) WR, DATA
    (D) RD, MEMORY

63. If CPU and I/O interface share a common bus than transfer of data b/w 2 units is said to be:
    (A) Synchronous
    (B) Asynchronous
    (C) Clock dependent

(D) Decoder independent

64. _____is a single control line that informs destination unit that a valid is available on the bus:
    (E) Strobe
    (F) Handshaking
    (G) Synchronous
    (H) Asynchronous

65. What is disadvantage of strobe scheme:
    (E) No surety that destination received data before source removes it
    (F) Destination unit transfer without knowing whether source placed data on data bus
    (G) Can't said
    (H) Both a & b

66. In_____ technique has 1 or more control signal for acknowledgement that is used for intimation:
    (A) Handshaking
    (B) Strobe
    (C) Both a & b
    (D) None of these

67. Modes of transfer b/w computer and I/O device are:
    (A) Programmed I/O
    (B) Interrupt-initiated I/O
    (C) DMA
    (D) All of these

68. _____operations are the results of I/O operations that are written in the computer program:
    (A) Programmed I/O
    (B) DMA
    (C) Handshaking
    (D) Strobe

69. _____is a dedicated processor that combines interface unit and DMA as one unit:
    (A) Input-Output Processor
    (B) Only input processor
    (C) Only output processor
    (D) None of these

70. _____is a special purpose dedicated processor that is designed specially designed for data transfer in network:
    (A) Data Processor
    (B) Data Communication Processor
    (C) DMA Processor
    (D) Interrupt Processor

71. _____processor has to check continuously till device becomes ready for transferring the data:
    (A) Interrupt-initiated I/O
    (B) DMA
    (C) IOP
    (D) DCP

72. Interrupt-driven I/O data transfer technique is based on_____ concept:
    (A) On demand processing
    (B) Off demand processing
    (C) Both a & b
    (D) None of these

73. Which technique helps processor to run a program concurrently with I/O operations:
    (A) Interrupt driven I/O
    (B) DMA
    (C) IOP
    (D) DCP

Interrupts

74. PSW is saved in stack when there is a
    (A) Interrupt recognized

    (B) Execution of RST instruction

    (C) Execution of CALL instruction

    (D) All of these

    Ans: A

75. When CPU is executing a Program that is part of the Operating System, it is said to be in
    (A) Interrupt mode **(B)** System mode

    (C) Half mode **(D)** Simplex mode

Ans: B

76. What is a trap?

(A) External interrupt **(B)** Internal Interrupt.

(C) Software Interrupt **(D)** Error

Ans: B

77. 3 types of exceptions are:
    - **(A)** Interrupts
    - **(B)** Traps
    - **(C)** System calls
    - **(D)** All of these

78. Which exception is also called software interrupt:
    - **(A)** Interrupt
    - **(B)** System calls
    - **(C)** Traps
    - **(D)** All of these

79. User programs interact with I/O devices through:
    - **(A)** Operating system
    - **(B)** Hardware
    - **(C)** Cpu
    - **(D)** Microprocessor

80. Which table handle store address of interrupt handling subroutine:
    - **(A)** Interrupt vector table
    - **(B)** Vector table
    - **(C)** Symbol link table
    - **(D)** None of these

81. Which technique is used that identifies the highest priority resource by means of software:
    - **(A)** Daisy chaining
    - **(B)** Polling
    - **(C)** Priority
    - **(D)** Chaining

82. _____interrupt establishes a priority over the various sources to determine which request should be entertained first:

(A) Priority interrupt
(B) Polling
(C) Daisy chaining
(D) None of these

83. _____method is used to establish priority by serially connecting all devices that request an interrupt:

(A) Polling
(B) Daisy chaining
(C) Priority
(D) None of these

84. In daisy chaining device 0 will pass signal only if it has:
(A) Interrupt request
(B) No interrupt request
(C) Both a & b
(D) None of these

85. VAD stands for:
(A) Vector address
(B) Symbol address
(C) Link address
(D) None of these

86. _____interrupt method uses a register whose bits are set separately by interrupt signal for each device:
(A) Parallel priority interrupt
(B) Serial priority interrupt
(C) Both a & b
(D) None of these

87. _____register is used whose purpose is to control status of each interrupt request in parallel priority interrupt:
(A) Mass
(B) Mark
(C) Make
(D) Mask

88. The ANDed output of bits of interrupt register and mask register are set as input of:
(A) Priority decoder
(B) Priority encoder
(C) Priority decoder
(D) Multiplexer

89. Which 2 output bits of priority encoder are the part of vector address for each interrupt source in parallel priority interrupt:
    (A) A0 and A1
    (B) A0 and A2
    (C) A0 and A3
    (D) A1 and A2

90. What is the purpose of A0 and A1 output bits of priority encoder in parallel priority:
    (A) Tell data bus which device is to entertained and stored in VAD
    (B) Tell subroutine which device is to entertained and stored in VAD
    (C) Tell subroutine which device is to entertained and stored in SAD
    (D) Tell program which device is to entertained and stored in VAD

91. When CPU invokes a subroutine it performs following functions:
    (A) Pushes updated PC content(return address) on stack
    (B) Loads PC with starting address of subroutine
    (C) Loads PC with starting address of ALU
    (D) Both a & b

92. Which two RAID types use parity for data protection?

a. RAID 1

b. RAID 4

c. RAID 1+ 0

d. RAID 5

93. 3. Which one of these is characteristic of RAID 5?
    a. Distributed parity
    b. No Parity
    c. All parity in a single disk
    d. Double Parity

94. 4. What is the unique characteristic of RAID 6 (Choose one)?
    a. Distributed Parity
    b. Striping
    c. Two independent distributed parity
    d. Mirroring

95. 5. Which of the following combinations can support RAID 05?
    a. 2 sets with 3 disks each
    b. 3 sets with 2 disks each

c. 4 sets with 3 disks each
d. 4 sets with 1 disk each

96. 6. What is the minimum number of disks required for RAID1?
a. 1
b. 2
c. 4
d. 5

97. Which of the following raid levels provides maximum usable disk space?
a. RAID 1
b. RAID 0
c. RAID 5
d. RAID 6

98. An array of disks is more likely to fail compared to a single disk. How is it that RAID arrays still manage to provide more data protection compared to a single disk?
a. Using either mirroring or striping
b. Using either mirroring or parity
c. Using better quality disks
d. Using dedicated hardware

Data Structures and Algorithms

1. In a min-heap:

A - parent nodes have values greater than or equal to their children

B - parent nodes have values less than or equal to their children

C - both statements are true

D - both statements are wrong

2 - Minimum number of moves required to solve a Tower of Hanoi puzzle is

A - 2 n^ 2

B – 2^ n-1

C – 2^ n - 1

D - 2n – 1

3. Which of the following asymptotic notation is the worst among all?

A - On + 9378

B - O(n ^3)

C – n^O1

D – 2^On

4.Maximum degree of any vertex in a simple graph of vertices n is

A - 2n - 1

B - n

C - n + 1

D - n – 1

5.Which of the following algorithm is not stable?

A - Bubble Sort

B - Quick Sort

C - Merge Sort

D - Insertion Sort

6.Which of the following is example of in-place algorithm?

A - Bubble Sort

B - Merge Sort

C - Insertion Sort

D - All of the above

7.After each iteration in bubble sort

A - at least one element is at its sorted position.

B - one less comparison is made in the next iteration.

C - Both A & B are true.

D - Neither A or B are true

8. Time required to merge two sorted lists of size m and n, is

A - Om| n

B - Om + n

C - Omlogn

D – Onlogm

9.If queue is implemented using arrays, what would be the worst run time complexity of enqueue and dequeue operations?

A - On, On

B - On, O1

C - O1, On

D - O1, O1

10. What happens when you push a new node onto a stack?

A. The new node is placed at the front of the linked list

B. The new node is placed at the back of the linked list

C. The new node is placed at the middle of the linked list

D. No Changes happens

11. A queue in which insertion and deletion takes places from any position is called .....

A. circular queue

B. random of queue

C. priority

D. dequeue

12. In Binary trees nodes with no successor are called .....

A. End nodes

B. Terminal nodes

C. Final nodes

D. Last nodes

13. The depth of complete binary tree is given by .....

A. Dn = n log2n

B. Dn= n log2n+1

C. Dn = log2n

D. Dn = log2n+1

14. The post order traversal of binary tree is DEBFCA. Find out the pre order traversal.

A. ABFCDE

B. ADBFEC

C. ABDECF

D. ABDCEF

15. If every node u in G adjacent to every other node v in G, A graph is said to be

A. isolated

B. complete

C. finite

D. strongly connected

16. If CurrNode pointer points to the previous node in the list and NewNode points to the newly created Node, the address assignments to be done for inserting a node in the middle of a singly linked list is

a. CurrNode->Next = NewNode; NewNode->Next = CurrNode->Next

b. NewNode->Next = CurrNode->Next; CurrNode->Next = NewNode;

c. CurrNode->Next = NewNode->Next; NewNode->Next = CurrNode;

d. CurrNode = NewNode

17. Identify the sorting technique that supports divide and conquer strategy and has (n2) complexity in worst case

a. Insertion

b. Shell

c. Merge

d. Quick

18. The run time of the following algorithm is

Procedure A(n)

If(n<=2) return(1)

Else return(A(sqrt(n))

a)O(n)

b) O(logn)

c) O(loglogn)

d) O(1)

19. For non-negative functions, f(n) and g(n), f(n) is theta of g(n) if and only if

a. f(n) = O(g(n)) and f(n) = Ω(g(n))

b. f(n) = O(g(n)) and f(n) = o((g(n))

c. f(n) = O(g(n)) and f(n) = ω (g(n))

d. f(n) = Q(g(n)) and f(n) = Ω(g(n))

20. **The degree of a leaf node is:**

a: 1

b: 0

c: -1
d:2

Answers:

1. B
2. C
3. D
4. D
5. B
6. B
7. C
8. B
9. D
10. A
11. C
12. B
13. D
14. A
15. B
16. B
17. D
18. B
19. A
20. B

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c: -1
d:2

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2. C
3. D
4. D
5. B
6. B
7. C
8. B
9. D
10. A
11. C
12. B
13. D

14. A
15. B
16. B
17. D
18. B
19. A
20. B

Data Structures and Algorithms

1. Which among the following is not a linear data structure?

   a) Graphs b) Linked lists c) Circular linked lists d) Arrays

Answer: A

2. For the given infix expression a+b^c*(d-e) where '^' denotes the EX-OR operator, the

   corresponding prefix expression is

   a) -+a^b*cde b) +a*^bc-de c) ^+ab*c-de d) +-a^bc*de

Answer : C

3. Which of the following is termed as reverse polish notation?

   a) Big-O notation b) Little-Oh notation c) Prefix notation d) Postfix Notation

Answer: D

4. What does the code snippet given below do?

```
void fun1(struct node* head)
{
  if(head == NULL)
    return;

  fun1(head->next);
  printf("%d  ", head->data);
}
```

a) Prints all nodes of linked lists
b)Prints all nodes of linked list in reverse order
c)Prints alternate nodes of Linked List
d)Prints alternate nodes in reverse order

Answer: B

5. Given the following structure template, choose the correct syntax for accessing the 5th subject marks of the 3rd student.

```
struct stud

{

    int marks[6];

    char sname[20];

    char rno[10];

}s[10];
```

a) stud[2].marks[4] b) stud[4].marks[2] c) s[2].marks[4] d) s[4].marks[2]

Answer: C

6. What is the postfix expression for the following infix expression?

Infix = a+b%c>d

a) abcd>%+ b) abc%d>+ c) ab+c%d> d) abc%+d>

Answer: D

7. Among the following which is not the application of a stack?

a) Postponing data usage b) Job scheduling c) Backtracking d) none

Answer: B

8. Which of the following is not correct to create an integer array of size 20?

a) int *a= (int*) malloc(20*sizeof(int)) ;
b) int *a= (int*) malloc(80) ;
c) int x; int *a= (int*) malloc(20*sizeof(x)) ;
d) All are correct

Answer: D

9. If a , b , c, are three nodes connected in sequence in a singly linked list

```
struct node *temp=a;

while(temp!=NULL)

{

   temp=temp->next;  printf( "$");

}
```

Assuming 'c' to be the last node, the output is

a) $$$ b) $$ c) NULL d) error

Answer: A

10. You are given pointers to first and last nodes of a singly linked list, which of the following operations are dependent on the length of the linked list?
    a) Delete the first element
    b) Insert a new element as a first element
    c) Delete the last element of the list
    d) Add a new element at the end of the list

Answer: C

11. On adopting shell sort technique, the output of the array (21,62,14,9,30,77,80,25) after a pass with increment size =3, is
    a) 9 30 14 21 25 77 80 62

    b) 9 25 14 21 30 77 80 62

    c) 9 14 21 25 30 62 77 80

    d) the same array

Answer: B

12. Consider a dynamic queue with two pointers: front and rear. What is the time needed to insert an element in a queue of length of n?
    a) O(log2n) b) O(n). c) O(1). d) O(n log2n).

Answer: C

13. If a , b , c, are three nodes connected in sequence in a singly linked list, what is the statement to be added to change this into a circular linked list?
    a) a->next=b b) b->next=c c) c->next=a d) all

Answer: C

14. In which of the following hashing methods, the below expression is used to find the home address, given a 6-digit number as the key.
    Sum=key%100+(key/100)%100+(key/10000).
    a) Modulo division b) Key offset c) Pseudo random d) Fold shift

Answer: D

15. Which sorting technique uses a data structure similar to the one used in bucket hashing?
    a) Quick b) Merge c) Heap d) Radix

Answer: D

16. For the array (77 ,62,114,80,9,30,99), write the order of the elements after two passes using the Radix sort.

a) 80 30 62 114 77 9 99 b) 114 30 62 77 9 99

c) 9 114 30 62 77 80 99 d) 9 30 62 77 80 99 114

Answer: C

17. Which of these is asymptotically bigger?

a) $79n^2+43n$ b) $65n^3+34n$ c) $6*2^n$ d) none

Answer: C

18. If a[ ] is the array containing the elements to be sorted using radix sort, during the first iteration in which the LSD is considered, row number in 2D array to which an element has to be stored is given by

a) a[i]/10%10 b) a[i]%10/10 c) a[i]%10 d) a[i]/100%10

Answer: C

19.
```
temp=root->left;
while(temp->right!=NULL)

 temp=temp->right;

 return temp;
```

The above code snippet for a BST with the address of the root node in pointer 'root'

returns

a) Inorder successor of the root
b) Maximum element in the right subtree of root
c) Both a and b
d) Inorder predecessor of the root

Answer: D

20. For a tree which has no right subtree, if the inorder sequence is DBEA, its preorder sequence cannot be

a) ABDE b) BADE c) AEBD D) ABED

Answer: B

1. When determining the efficiency of algorithm, the space factor is measured by

a. Counting the maximum memory needed by the algorithm

b. Counting the minimum memory needed by the algorithm

c. Counting the average memory needed by the algorithm

d. Counting the maximum disk space needed by the algorithm

Answer a.

2. The complexity of Bubble sort algorithm is

a. O(n)

b. O(log n)

c. O(n2)

d. O(n log n)

Answer b

3. Linked lists are best suited

a. for relatively permanent collections of data

b. for the size of the structure and the data in the structure are constantly changing

c. for both of above situation

d. for none of above situation

Answer b

4. If the values of a variable in one module is indirectly changed by another module, this situation is called

a. internal change

b. inter-module change

c. side effect

d. side-module update

Answer c

5. In linear search algorithm the Worst case occurs when

a. The item is somewhere in the middle of the array

b. The item is not in the array at all

c. The item is the last element in the array

d. The item is the last element in the array or is not there at all

Answer d

6. For an algorithm the complexity of the average case is

a. Much more complicated to analyze than that of worst case

b. Much more simpler to analyze than that of worst case

c. Sometimes more complicated and some other times simpler than that of worst case

d. None or above

Answer a

7. The complexity of merge sort algorithm is

a. O(n)

b. O(log n)

c. O(n2)

d. O(n log n)

Answer d

8. The complexity of linear search algorithm is

a. O(n)

b. O(log n)

c. O(n2)

d. O(n log n)

Answer a

9. When determining the efficiency of algorithm the time factor is measured by

a. Counting microseconds

b. Counting the number of key operations

c. Counting the number of statements

d. Counting the kilobytes of algorithm

Answer b

10. Which of the following data structure is linear data structure?

a. Trees

b. Graphs

c. Arrays

d. None of above

Answer c

11. The elements of an array are stored successively in memory cells because

a. by this way computer can keep track only the address of the first element and the addresses of other elements can be calculated

b. the architecture of computer memory does not allow arrays to store other than serially

c. both of above

d. none of above

Answer a

12. Which of the following data structure is not linear data structure?

a. Arrays

b. Linked lists

c. Both of above

d. None of above

Answer d

13. The Average case occur in linear search algorithm

a. When Item is somewhere in the middle of the array

b. When Item is not in the array at all

c. When Item is the last element in the array

d. When Item is the last element in the array or is not there at all

Answer a

14. Two main measures for the efficiency of an algorithm are

a. Processor and memory

b. Complexity and capacity

c. Time and space

d. Data and space

Answer c

15. Finding the location of the element with a given value is:

a. Traversal

b. Search

c. Sort

d. None of above

Answer b

16. Which of the following case does not exist in complexity theory

a. Best case

b. Worst case

c. Average case

d. Null case

Answer d

17. The operation of processing each element in the list is known as

a. Sorting

b. Merging

c. Inserting

d. Traversal

Answer d

18. Arrays are best data structures

a. for relatively permanent collections of data

b. for the size of the structure and the data in the structure are constantly changing

c. for both of above situation

d. for none of above situation

Answer a

19. Each array declaration need not give, implicitly or explicitly, the information about

a. the name of array

b. the data type of array

c. the first data from the set to be stored

d. the index set of the array

Answer c

20. The complexity of Binary search algorithm is

a. O(n)

b. O(log)

c. O(n2)

d. O(n log n)

Answer b

21. Which if the following is/are the levels of implementation of data structure

A) Abstract level

B) Application level

C) Implementation level

D) All of the above

Answer D

22. A binary search tree whose left subtree and right subtree differ in hight by at most 1 unit is called ……

A) AVL tree

B) Red-black tree

C) Lemma tree

D) None of the above

Answer A

23. …….. level is where the model becomes compatible executable code

A) Abstract level

B) Application level

C) Implementation level

D) All of the above

Answer C

24. Stack is also called as

A) Last in first out

B) First in last out

C) Last in last out

D) First in first out

Answer A

25. Which of the following is true about the characteristics of abstract data types?

i) It exports a type.

ii) It exports a set of operations

A) True, False

B) False, True

C) True, True

D) False, False

Answer C

26. …… is not the component of data structure.

A) Operations

B) Storage Structures

C) Algorithms

D) None of above

Answer D

27. Which of the following is not the part of ADT description?

A) Data

B) Operations

C) Both of the above

D) None of the above

Answer D

28. Inserting an item into the stack when stack is not full is called …… Operation and deletion of item form the stack, when stack is not empty is called ……..operation.

A) push, pop

B) pop, push

C) insert, delete

D) delete, insert

Answer A

29. ……. Is a pile in which items are added at one end and removed from the other.

A) Stack

B) Queue

C) List

D) None of the above

Answer B

30. …… is very useful in situation when data have to stored and

then retrieved in reverse order.

A) Stack

B) Queue

C) List

D) Link list

Answer A

31. Which data structure allows deleting data elements from and inserting at rear?

A) Stacks

B) Queues

C) Dequeues

D) Binary search tree

Answer B

32. Which of the following data structure can't store the non-homogeneous data elements?

A) Arrays

B) Records

C) Pointers

D) Stacks

Answer A

33. A ..... is a data structure that organizes data similar to a line in the supermarket, where the first one in line is the first one out.

A) Queue linked list

B) Stacks linked list

C) Both of them

D) Neither of them

Answer A

34. Which of the following is non-liner data structure?

A) Stacks

B) List

C) Strings

D) Trees

Answer D

35. Herder node is used as sentinel in .....

A) Graphs

B) Stacks

C) Binary tree

D) Queues

Answer C

36. Which data structure is used in breadth first search of a graph to hold nodes?

A) Stack

B) queue

C) Tree

D) Array

Answer B

37. Identify the data structure which allows deletions at both ends of the list but insertion at only one end.

A) Input restricted dequeue

B) Output restricted qequeue

C) Priority queues

D) Stack

Answer A

38. Which of the following data structure is non linear type?

A) Strings

B) Lists

C) Stacks

D) Graph

Answer D

39. Which of the following data structure is linear type?

A) Graph

B) Trees

C) Binary tree

D) Stack

Answer D

40. To represent hierarchical relationship between elements, Which data structure is suitable?

A) Dequeue

B) Priority

C) Tree

D) Graph

Answer C

41. The complexity of Bubble sort algorithm is

A. O(n)

B. O(log n)

C. O(n2)

D. O(n log n)

Answer B

42. The data structure required to evaluate a postfix expression is

A. queue

B. stack

C. array

D. linked-list

Answer C

43. The indirect change of the values of a variable in one module by another module is called

A. internal change

B. inter-module change

C. side effect

D. side-module update

Answer B

44. The process of accessing data stored in a serial access memory is similar to manipulating data on a

A. heap

B. queue

C. stack

D. binary tree

Answer B

45. Which of the following data structure is linear data structure?

A. Trees

B. Graphs

C. Arrays

D. None of above

Answer C

46. The operation of processing each element in the list is known as

A. Sorting

B. Merging

C. Inserting

D. Traversal

Answer C

47. Finding the location of the element with a given value is:

A. Traversal

B. Search

C. Sort

D. None of above

Answer D

48. A BST is traversed in the following order recursively: Right, root, left

The output sequence will be in

A. Ascending order

B. Descending order

C. Bitomic sequence

D. No specific order

Answer B

49. Linked lists are best suited

A. for relatively permanent collections of data

B. for the size of the structure and the data in the structure are constantly changing

C. for both of above situation

D. for none of above situation

Answer B

50. Each array declaration need not give, implicitly or explicitly, the information about

A. the name of array

B. the data type of array

C. the first data from the set to be stored

D. the index set of the array

Answer B

ITE302 - Database Systems / Comprehensive Exam Quesions

1. Assume that a table R with 1000 records is to be joined with another table S with 10000 records. What is the maximum number of records that would result in if we join R with S and the equi-join attribute of S is the primary key?	
(a) 1,000	**(b) 10,000**
(c) 1,00,00,000	(d) 11,000
2. Consider a schedule S1 given below; R1(A); W1(A); R2(B); R2(A); R1(B); W2(A+B); W1(B); where R1 and W1 are read and write operations of transaction T1 and R2 and W2 are read and write operations of transaction T2. Which of the following is correct regarding schedule S1?	
(a) S1 is a serializable schedule	**(b) A deadlock will occur if 2PL is used**
(c) S1 is a conflict serializable schedule	(d) S1 is a view serializable schedule
3. Consider a relation R (A, B). If A → B is a trivial functional dependency and A is the super key for R, then what is the maximum normal form R can be in?	
(a) 3NF	(b) 2NF
(c) BCNF	(d) 1NF
4. Which of the following is a disadvantage of file processing system? (I) Efficiency of high level programming, (II) Data Isolation (III) Integrity issues (IV) Storing of records as files	
(a) I only	(b) III only
(c) II and III only	(d) II and IV only
5. The data manipulation language used in SQL is a, (I) Procedural DML (II) Non-Procedural DML (III) Modification DML (IV) Declarative DML	

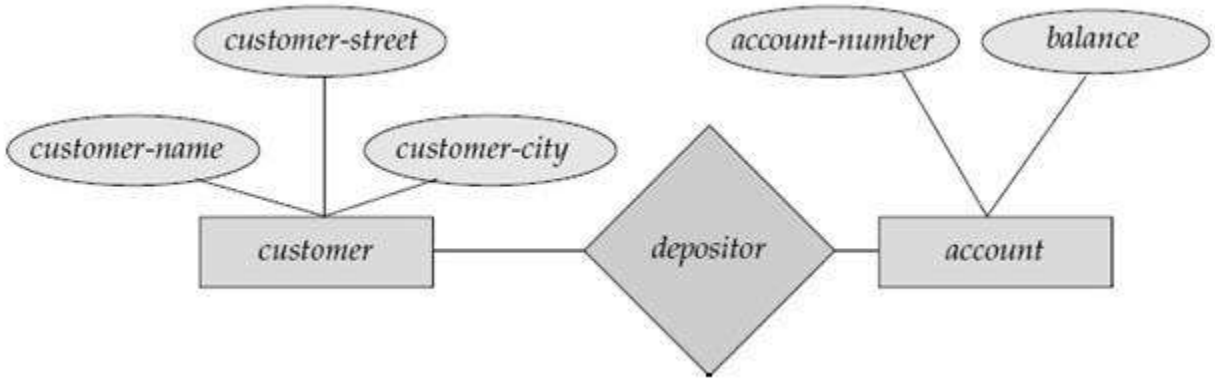
(a) I and II only	(b) III and IV only
(c) II and IV only	(d) I and IV only
6. Which of the following is not a function of a DBA?	
(a) Table creation	(b) Index creation
(c) User creation	**(d) Application creation**
7. Assume a relation R with keys X, Y and Z, where X, Y, and Z are sets of one or more attributes. Also assume that Y is a subset or equal to X and Z is a subset of X and Y. Which of the following is true for this case?	
(a) X and Y are candidate keys of R	(b) Y and Z are the candidate keys of R
(c) X is the only candidate key of R	**(d) Z is the only candidate key of R**
8. Assume relations R and S with the schemas R (A, B, C) and S (B, D). Which of the following is equivalent to r ⋈ s?	
(a) $\sigma_{r.B = s.B}$ ($r \bowtie s$)	**(b) $\prod_{r.A, r.B, r.C, s.D}$ ($\sigma_{r.B = s.B}$ ($r \times s$))**
(c) $\prod_{r.A, r.B, s.B, r.C, s.D}$ ($\sigma_{r.B = s.B}$ ($r \times s$))	(d) $\prod_{r.A, r.B, s.B, r.C, s.D}$ ($\sigma_{r.B = s.B}$ ($r \bowtie s$))
9. Consider a relational table with the schema R (A, B, C). Assume that the cardinality of attribute A is 10, B is 20, and C is 5. What is the maximum number of records R can have without duplicate?	
(a) 35	(b) 100
(c) 1000	(d) 200
10. Which of the following operator in SQL would produce the following result if applied between two relations Employee and Department?	

Eno	EName	DeptNo	DName
111	Kumar	100	Sales
222	Steve	200	Finance
Null	Null	300	Admn
244	Meera	400	Mktg

(a) Outer Join	(b) Natural Join

(c) Cartesian Join	(d) Projection Join
11. Consider the schedules given below. All of them involving at least three transactions. The read operation on a data item x is represented as $r_i(x)$ and a write operation is represented as $w_i(x)$ where i is the transaction number. Which one of them is conflict serializable?	
(a) $r_2(x)$, $r_1(x)$, $w_2(x)$, $r_3(x)$, $w_1(x)$	**(b) $r_2(x)$, $w_2(x)$, $r_3(x)$, $r_1(x)$, $w_1(x)$**
(c) $r_1(x)$, $r_2(x)$, $w_1(x)$, $r_3(x)$, $w_2(x)$	(d) $r_3(x)$, $r_2(x)$, $r_1(x)$, $w_2(x)$, $w_1(x)$
12. Consider a disk with following specification; sector size - 512 bytes, tracks per surface - 2000, sectors per track - 60, double-sided platters - 4, and average seek time - 20 msec. For a 5400 rpm hard disk for one revolution, if a single track of data can be transferred, then what is the transfer rate?	
(a) 2727 Kbytes/second	(b) 2020 Kbytes/second
(c) 5400 Kbytes/second	(d) 2048 Kbytes/second
13. Assume that a table CUSTOMER has 10000 records. If the block size 1024 bytes and the record size is 80 bytes, how many records can be stored in each block to achieve maximum performance and how many blocks are required to store the entire table?	
(a) 12, 834	(b) 13, 833
(c) 24, 834	(d) 23, 833
14. Consider a relation R (A, B, C, D, E) with set of functional dependencies F = {A→BC, CD→E, B→D, E→A}. Which of the following is one of the candidate keys of R?	
(a) ABC	(b) B
(c) E	(d) ED
15. Given R = ABCDEFGH and set of functional dependencies F = {BH→C, BH→F, E→F, A→D, F→A, BH→E, C→E, F→D}, which of the following is redundant set of functional dependencies?	
(a) BH→C, F→D, F→A	**(b) BH→C, F→D, BH→E**
(c) BH→E, A→D, F→D	(d) BH→C, A→D, BH→E
16. Assume a relation ACCOUNT (acno, balance, type, branch, last_accessed) with 1 million records. If a SQL query "SELECT balance FROM account WHERE balance>5000" would produce 800000 records, which one of the following is the optimized version of relational algebra expressions that is equivalent to the given SQL query?	
(a) $\sigma_{balance}$ ($\Pi_{balance>5000}$ (*account*))	**(b) $\sigma_{balance>5000}$ ($\Pi_{balance}$ (*account*))**
(c) $\Pi_{balance}$ ($\sigma_{balance<5000}$ (*account*))	(d) $\Pi_{balance>5000}$ ($\sigma_{balance}$ (*account*))

17. Consider the ER diagram given below;



If *depositor* is a one-to-many relationship from account to customer, then this ER diagram can be reduced to which of the following relational schemas?

(a) Customer (customer-name, customer-street, customer-city, account-number) **Account(account-number, balance)**	(b) Customer (customer-name, customer-street, customer-city, account-number) Account(account-number, balance, customer-name) Depositor (customer-name, account-number)
(c) Customer (customer-name, customer-street, customer-city) Account(account-number, balance) Depositor (customer-name, account-number)	(d) Customer (customer-name, customer-street, customer-city) Account(account-number, balance, customer-name)

18. The conjunctive selection operation $\sigma_{\theta 1 \wedge \theta 2}(E)$ is equivalent to _____

(a) $\sigma_{\theta 1}(E)$ U $\sigma_{\theta 2}(E)$	(b) $\sigma_{\theta 1}(E) \cap \sigma_{\theta 2}(E)$
(c) $\sigma_{\theta 1}(\sigma_{\theta 2}(E))$	(d) $\pi_{\theta 1}(E)$ U $\pi_{\theta 2}(E)$

19. Assume a table Employee (Eno, Ename, Dept, Salary, Phone) with 10000 records. Also assume that Employee has a non-clustering index on Salary, clustering indexes on Dept and Phone. If there is a SQL query "SELECT Eno FROM Employee WHERE Salary/12 = 10000", which of the following will happen during query execution?

(a) Query will use index of Salary	(b) Query will use index of Dept
(c) Query will use index of Phone	**(d) Query will not use index**

20. Which of the following concurrency control mechanisms insist unlocking of all read and write locks of transactions at the end of commit?

(a) Strict 2 Phase Locking	(b) Simple 2 Phase Locking

(c) Timestamp ordering	**(d) Rigorous 2 Phase Locking**

DBMS MCQs

1. What are the desirable properties of a transaction?

A) Atomicity, consistency, isolation, deadlock

B) Atomicity, consistency, isolation, durability

C) Atomicity, concurrency, isolation, durability

2. If a transaction T has obtained an exclusive lock on item Q, then T can

A) read Q B) write Q C) both read and write Q D) write Q but not read Q

3. If two relations R and S are joined, then the non matching tuples of both R and S are

ignored in

A) left outer join B) right outer join C) full outer join D) inner join

4. The FD A → B , DB→ C implies

A) DA→ C B) A → C C) B → A D) DB → A

5. The process of analyzing the given relation schemas based on their functional dependencies is known as
A) Dependency B) normalization C) both a and b D)none

6. Block-interleaved distributed parity is RAID level

(A) 2. (B) 3 (C) 4. (D) 5.

7. Maximum height of a B+ tree of order m with n key values is

A) $Log_m(n)$ B) (m+n)/2 C) $Log_{m/2}(m+n)$ D) None of these

8. What operator performs pattern matching?

A) LIKE B) NULL C) NOT NULL D) IS NULL

9. Manager's salary details are hidden from the employee. This is called as

(A) Conceptual level data hiding

(B) Physical level data hiding

(C) External level data hiding

(D) Local level data hiding

10. Which of the following statements is false?

(A) Any relation with two attributes is in BCNF.

(B) A relation in which every key has only one attribute is in 2NF.

(C) A prime attribute can be transitively dependent on a key in 3NF relation.

(D) A prime attribute can be transitively dependent on a key in BCNF relation.

11. A clustering index is created when _____.

(A) primary key is declared and ordered

(B) no key ordered

(C) foreign key ordered

(D) there is no key and no order

12. Which of the following is not a consequence of non-normalized database?

A) Update Anomaly B) Insertion Anomaly C) Redundancy D) Lost update problem

13. An ER Model includes

I. An ER diagram portraying entity types.

II. Attributes for each entity type

III. Relationships among entity types.

IV. Semantic integrity constraints that reflects the business rules about data not captured in the ER diagram.

(A) I, II, III & IV (B) I & IV

(C) I, II & IV (D) I & III

14. If the closure of an attribute set is the entire relation then the attribute set is a

A) Super key B) candidate key C) primary key D) not a key

15. Which of the following are the advantages of DBMS?
A) Redundancy is controlled B) unauthorized access is restricted
C) enforce integrity constraints D) all of these

16. Division operation is ideally suited to handle queries of the type :

(A) customers who have no account in any of the branches in Delhi.

(B) customers who have an account at all branches in Delhi.

(C) customers who have an account in atleast one branch in Delhi.

(D) customers who have only joint account in any one branch in Delhi

17. Which of the following is true ?

I. Implementation of self-join is possible in SQL with table alias.

II. Outer-join operation is basic operation in relational algebra.

III. Natural join and outer join operations are equivalent.

(A) I and II are correct. (B) II and III are correct.

(C) Only III is correct. (D) Only I is correct.

18. What kind of mechanism is to be taken into account for converting a weak entity set into

strong entity set in entity-relationship diagram ?

(A) Generalization (B) Aggregation

(C) Specialization (D) Adding suitable attributes

19. The best normal form of relation scheme R (A, B, C, D) along with the set of functional dependencies F = {AB →C, AB → D, C → A, D → B} is

(A) Boyce-Codd Normal form (B) Third Normal form

(C) Second Normal form (D) First Normal form

20. Identify the minimal key for relational scheme R(A, B, C, D, E) with functional dependencies F = {A → B, B → C, AC → D}

(A) A (B) AE (C) BE (D) CE

1	B
2	C
3	D
4	A
5	B
6	D
7	D
8	A
9	C
10	D
11	A
12	D
13	A
14	A
15	D

16 B

17 D

18 D

19 B

20 A

1. _____ users work on canned transactions

   a. sophisticated b. naïve c. DBA d. casual

2. If a hospital has to store the description of each visit of a patient according to date what attribute you will use in the patient entity type?

   a. Composite b. complex c. multi valued d. weak entity

3. Passing the request from one schema to another in DBMS architecture is called as _____

   a. Mapping b. Communication c. Relational d. network

4. _____gives the concepts to describe the structure of the database.

   a. Data Model b. Relational model c. Domain model d. Schema model

5. _____is the description of the database

   a. schema b. schema construct c. schema evolution d. snapshot

6. The advantage of DBMS over file systems is

   a. redundancy b. data dependence c. multiple user d. single user

7. Changing the conceptual schema without having to change the external schema is called as _____

a) physical data independence b) logical data independence c) data model d) relational model

8. _____is the first schema to be designed when you are developing a DBMS

a) conceptual b) relational c) physical d) hierarchical

9. Creating a B Tree index for your database has to specify in _____.

a. DDL b. SDL c. VDL d. TCL

10. DBMS cannot be classified on

a) data model b) Number of sites c) Number of users d) Concurrency level

11. _____attribute is used when the values are not divisible

a) Simple b) derived c) multiple d) descriptive

12. Which of this is not a implementation data model

a. a. UML b. Relational c. Hierarchical d. network

13. The relationship that exists within the same entity type is called as _____ relationship.

a. Identifying b. recursive c. logical d. physical

14. Adding a new column to a table comes in

a. a. DDL b. SDL c. VDL d. TCL

15. To change the access path programs are categorized under _____ data independence.

a. Physical b. logical c. internal d. external

16. The data type describing the types of values that can appear in each column is called _____.

a. Domain b. Tuple c. Attribute d. Relation

17. The set of all attributes of a relation is called default _____.

a. Primary Key b. Super Key c. Foreign Key d. Alternate key

18. Minimal super key of a relation is called _____.

a. Primary Key b. Super Key c. Foreign Key d. Alternate key

19. R has n tuples and S has m tuples, then the Cartesian product of R and S will produce _____ tuples.

a. n+m b. n*m c. n / m d. n-m

20. _____ constraint is specified between two relations and is used to maintain the consistency among tuples of the two relations

a. primary b. check c. referential d. secondary

21. In Relational model, the table is called a _____.

a. Domain b. Tuple c. Attribute d. Relation

22. The combination of selection and Cartesian product operators is _____ operator

a. Division b. Set difference c. Join d. Union

23. The attributes in foreign key and primary key have the same _____.

a. Number of tuples b. Number of attributes c. Domain d. Symbol

24. _____ join requires that the two join attributes have the same name in both relations.

a. Theta Join b. Equi join c. Self join d. Natural join

25. The expected size of the join result divided by the maximum size is called _____.

a. Join cardinality b. join selectivity c. join count d. number of rows

1. Naïve
2. Complex
3. Mapping
4. Data model
5. Schema
6. multiple user
7. Logical Data Independence
8. Conceptual
9. SDL
10. Concurrency level
11. Simple
12. UML
13. recursive
14. DDL
15. Physical
16. Domain
17. Super Key
18. Primary Key
19. n * m
20. referential
21. Relation
22. Join
23. Domain
24. Natural join
25. join selectivity

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ITE303- Data Communication and Computer Networks

1. Error correction and error detection happens in _____ layer.
   a. Physical layer
   b. Data link layer
   c. Session layer
   d. Application layer
   Ans: a

2. _____ uses reliable message stream.
   a. Connection oriented service
   b. Connection less service
   c. UDP
   d. RS232
   Ans: a

3. X.25 Networks is _____
   a. Packet switched
   b. Circuit switched
   c. Connection less service
   d. UDP
   Ans: a

4. ATM uses a ____ packet size
   a. Fixed 53byte
   b. Randomized
   c. Taken care by TCP fragmentation
   d. 48byte
   Ans: a

5. Switch works in ____ layer of OSI model.
   a. 2,3
   b. 3
   c. 2
   d. 1,2,3,4
   Ans: a

6. Elements in network core:

a. Routers
b. Applications
c. Hosts
d. Servers
Ans: a

7. Each router must implement some queuing discipline. Queuing allocates _____
a. Bandwidth
b. Protocol
c. Connectivity parameters
d. QoS levels
Ans:a

8. In _____ mechanism arriving packets get dropped when queue is full regardless of flow or importance
a. Drop tail
b. FIFO
c. Leaky bucket
d. STF
Ans:a

9. Mapping from ASCII strings to binary network address is done by _____
a. DNS
b. DHCP
c. IMAP
d. SNMP
Ans:a

10. Network Interface card contains _____
a. MAC address
b. IP address
c. Port no.
d. Seq no.
Ans: a

11. In datagram network packets typically routed using destination ___
a. Host id.
b. IP address
c. Port no
d. Mac address
Ans:a

12. In dynamic routing mechanism the route changes in response to _____
a. link cost changes
b. time
c. fragmentation size
d. sequence order

Ans:a

13. In _____ least cost paths from one node is computed
a. Dijkstra algo
b. Fredmen algo
c. Schezen algo
d. Domen algo
Ans:a

14. A backbone network that connects LANs in several buildings is sometimes referred to as a
a. campus-wide network.
b. Internet
c. Extranet
d. internet
Ans:a

15. _____ operate at the network layer, connecting two or more network segments that use the same or different data link layer protocols, but the same network layer protocol.
a. Routers
b. Firewall
c. Bridges
d. Gateway
Ans:a

16. The _____connects different backbone networks together
a. core layer
b. access layer
c. distributed layer
d. link layer
Ans:a

17. TCP manages a point-to-point and _____ connection for an application between two computers
a. full-duplex
b. simple
c. half duplex
d. multi point
Ans:a

18. A virtual circuit connection consists of two endpoints. Each endpoint is a pair of integers
a. host, port
b. socket, port
c. address, port

d. seqno, port
Ans: a

19. UDP has a smaller overhead then TCP, especially when the total size of the messages is
a. Small
b. Large
c. Segmented
d. Sequenced
Ans: a

20. Reliability in network is directly proportional to ____
a. Availability
b. Failure
c. Speed
d. Routing
Ans:a

1. How switching is performed in the internet?

(A) Datagram approach to circuit switching at data link layer
(B) Virtual circuit approach to message switching at network layer
(C) Datagram approach to message switching at datalink layer
(D) Datagram approach to packet switching at network layer.

Ans: A

2. A telephone switch is a good example of which of the following types of switches.

(A) packet
(B) buffer
(C) fabric
(D) circuit

Ans: D

3. A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit-string after stuffing is 01111100101, then the input bit-string is

(A) 0111110100
(B) 0111110101
(C) 0111111101
(D) 0111111111

Answer: (B)

4. In the following pairs of OSI protocol layer/sub-layer and its functionality, the **INCORRECT** pair is

(A) Network layer and Routing
(B) Data Link Layer and Bit synchronization
(C) Transport layer and End-to end process communication
(D) Medium Access Control sub-layer and Channel sharing

Ans: B

5. Which one of the following protocols is NOT used to resolve one form of address to another one?

(A) DNS
(B) ARP
(C) DHCP
(D) RARP

Ans:C

6. The transport layer protocols used for real time multimedia, file transfer, DNS and email, respectively are

(A) TCP, UDP, UDP and TCP
(B) UDP, TCP, TCP and UDP
(C) UDP, TCP, UDP and TCP
(D) TCP, UDP, TCP and UDP

Answer:-(C)

7. Which of the following transport layer protocols is used to support electronic mail?

(A) SMTP
(B) IP
(C) TCP
(D) UDP

Answer:-(C)

8. In one of the pairs of protocols given below, both the protocols can use multiple TCP connections between the same client and the server. Which one is that?

(A) HTTP,FTP
(B) HTTP,TELNET
(C) FTP,SMTP
(D) HTTP,SMTP

Ans: A

9. The protocol data unit (PDU) for the application layer in the Internet stack is

(A) Segment
(B) Datagram
(C) Message
(D) Frame

Answer:-(C)

10. In an Ethernet local area network, which one of the following statements is TRUE?

(A) A station stops to sense the channel once it starts transmitting a frame.
(B) The purpose of the jamming signal is to pad the frames that are smaller than the minimum frame size.
(C) A station continues to transmit the packet even after the collision is detected.
(D) The exponential backoff mechanism reduces the probability of collision on retransmissions.

Ans:D

11. In the IPv4 addressing format, the number of networks allowed under Class C addresses is

(A) 2^{14}
(B) 2^{7}
(C) 2^{21}
(D) 2^{24}

Answer:-(C)

12. Which one of the following fields of an IP header is NOT modified by a typical IP router?

(A) Checksum
(B) Source address
(C) Time to Live (TTL)
(D) Length

Ans:B

13. If a class B network on the Internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?

(A) 1022
(B) 1023
(C) 2046
(D) 2047

Ans:C

14. Assume that source S and destination D are connected through two intermediate routers labeled R. Determine how many times each packet hasto visit the network layer and the data link layer during a transmission from S to D.

(A) Network layer – 4 times and Data link layer-4 times
(B) Network layer – 4 times and Data link layer-3 times
(C) Network layer – 4 times and Data link layer-6 times
(D) Network layer – 2 times and Data link layer-6 times

Answer:-(C)

15. Identify the correct sequence in which the following packets are transmitted on the network by a host when a browser requests a webpage from a remote server, assuming that the host has just been restarted.

(A) HTTP GET request, DNS query, TCP SYN
(B) DNS query, HTTP GET request, TCP SYN
(C) DNS query, TCP SYN, HTTP GET request
(D) TCP SYN, DNS query, HTTP GET request

Ans:C

16. An IP router with a Maximum Transmission Unit (MTU) of 1500 bytes has received an IP packet of size 4404 bytes with an IP header of length 20 bytes. The values of the relevant fields in the header of the third IP fragment generated by the router for this packet are

(A) MF bit: 0, Datagram Length: 1444; Offset: 370
(B) MF bit: 1, Datagram Length: 1424; Offset: 185
(C) MF bit: 1, Datagram Length: 1500; Offset: 370
(D) MF bit: 0, Datagram Length: 1424; Offset: 2960

Answer: (A)

17. One of the header fields in an IP datagram is the Time to Live (TTL) field. Which of the following statements best explains the need for this field?

(A) It can be used to priortize packets

(B) It can be used to reduce delays

(C) It can be used to optimize throughput

(D) It can be used to prevent packet looping

Ans: D

18. Using public key cryptography, X adds a digital signature σ to message M, encrypts <M, σ >, and sends it to Y, where it is d

ecrypted. Which one of the following sequences of keys is used for the operations?

(A) Encryption: X's private key followed by Y's private key; Decryption: X's public key followed by Y's public key
(B) Encryption: X's private key followed by Y's public key; Decryption: X's public key followed by Y's private key
(C) Encryption: X's public key followed by Y's private key; Decryption: Y's public key followed by X's private key
(D) Encryption: X's private key followed by Y's public key; Decryption: Y's private key followed by X's public key

Answer:-(D)

19. Suppose that everyone in a group of N people wants to communicate secretly with N-1 others using symmetric key cryptographic system. The communication between any two persons should not be decodable by the others in the group. The number of keys required in the system as a whole to satisfy the confidentiality requirement is

(A) 2N
(B) N(N-1)
(C) N(N-1)/2
(D) $(N-1)^2$

Ans: C

20. A layer -4 firewall (a device that can look at all protocol headers up to the transport layer) CANNOT

(A) block entire HTTP traffic during 9:00PM and 5:00AM
(B) block all ICMP traffic
(C) stop incoming traffic from a specific IP address but allow outgoing traffic to the same IP address
(D) block TCP traffic from a specific user on a multi-user system during 9:00PM and 5:00AM

Ans: D

1. In Circuit Switching, resources need to be reserved during the
a) Data transfer phase
b) Teardown phase.
c) Setup phase
d) Propagation phase

2. The resources needed for communication between end systems are reserved for the duration of session between end systems in _____
a) Packet switching
b) **Circuit switching**
c) Line switching
d) Frequency switching

3.If message in Segmentation and Reassembly (SAR) sub layer of Application Adaptation Layer 3/4 has value of Segment type is 11 then it is called a

a) Beginning message
b) Ending message
c) Single-segment message
d) Middle message

4. Congestion control and quality of service is qualities of the

a) ATM
b) DH
c) Frame Relay
d) SONET

5. The local host and the remote host are defined using IP addresses. To define the processes, we need second identifiers called.....

a) UDP addresses
b) transport addresses
c) Port addresses
d) TCP addresses

6. UDP uses..... to handle outgoing user datagrams from multiple processes on one host.

a) Flow Control
b) Multiplexing
c) Demultiplexing
d) Data Control

7. The ..... protocol defines a set of messages sent over either User Datagram Protocol (UDP) port53 or Transmission Control Protocol(TCP) port53.

a) Name space
b) DNS
c) Domain space
d) Zone transfer

8. Which type of error detection uses binary division?

a) Parity
b) Longitudinal redundancy checking
c) Checksum checking
d) Cyclic redundancy checking

9. When a network interface has a failure in its circuitry, it sends a continuous stream of frames causing the Ethernet LAN to enter a Collapse state. This condition is known as _____.

a) Scattering
b) Blocking
c) **Jabbering**
d) Refreshing

10. Value of checksum must be recalculated regardless of

a) De-fragmentation
b) Fragmentation
c) Transferred
d) Shared

11. Dotted-decimal notation of 10000001 00001011 00001011 11101111 would be

a) 193.131.27.255
b) 129.11.11.239
c) 192.168.10.9
d) 172.16.11.3

12. Which one of the following allows a user at one site to establish a connection to another site and then pass keystrokes from local host to remote host?
a) HTTP
b) FTP
c) Telnet
d) Sonet

13. These networking classes encapsulate the "socket" paradigm pioneered in the (BSD) Give the abbreviation of BSD?
a) **Berkeley Software Distribution**
b) Berkeley Socket Distribution
c) Berkeley System Data
d) Berkeley Synchronization Data

14. Digital signature envelope is decrypted by using _____.
a) Merchant Private Key.
b) Payment's Private Key.
c) Payment Public Key.
d) Merchant's Public Key.

15. The processed S/MIME along with security related data is called as _____.
a) Public Key Cryptography Standard.
b) Private Key Cryptography Standard.
c) S/MIME.
d) MIME.

16. _____ Substitution is a process that accepts 48 bits from the XOR operation.

a) S-box.
b) P-box.
c) Expansion permutations.
d) Key transformation.

17. In ……. Mode, the authentication header is inserted immediately after the IP header.

a) Tunnel
b) Transport
c) Packet switching
d) Payload of the header

18. _____ uniquely identifies the MIME entities uniquely with reference to multiple contexts.

a) Content description.
b) Content-id.
c) Content type.
d) Content transfer encoding.

19. Which one of the following is a cryptographic protocol used to secure HTTP connection?
a) Stream Control Transmission Protocol (SCTP)
b) **Transport Layer Security (TSL)**
c) Explicit Congestion Notification (ECN)
d) Resource Reservation Protocol

20. ---------- is a mode of operation for a block cipher, with the characteristic that each possible block of plaintext has a defined corresponding ciphertext value and vice versa.
a) Foot printing
b) Hash Function
c) Water Mark
d) **Electronic Code Book**

Multiple Choice Questions on Microprocessor & its peripherals

8086:

1. The 16 bit flag of 8086 microprocessor is responsible to indicate _____
   A. the condition of result of ALU operation
   B. the condition of memory
   C. the result of addition
   D. the result of subtraction
   Answer : A
2. The BIU contains FIFO register of size _____ bytes
   A. 8 B. 6 C. 4 D. 12
   Answer : B
3. The _____ translates a byte from one code to another code
   A. XLAT B. XCHNG C. POP D. PUSH
   Answer : A
4. A 20-bit address bus allows access to a memory of capacity
   A. 1 MB B. 2 MB C. 4 MB D. 8 MB
   Answer : A
5. If the offset of the operand is stored in one of the index registers, then it is
   A. based indexed addressing mode
   B. relative based indexed addressing mode
   C. indexed addressing mode
   D. none of the mentioned
   Answer: c
6. 2. Which of the following is not a data copy/transfer instruction?
   a) MOV
   b) PUSH
   c) DAS
   d) POP
   Answer : C
7. Match the following
   a) MOvSB/SW 1) loads AL/AX register by content of a string
   b) CMPS 2) moves a string of bytes stored in source to destination
   c) SCAS 3) compares two strings of bytes or words whose length is stored in CX register
   d) LODS 4) scans a string of bytes or words
   a) a-3,b-4,c-2,d-1
   b) a-2,b-1,c-4,d-3
   c) a-2,b-3,c-1,d-4
   d) a-2,b-3,c-4,d-1
   Answer : d
8. 20. NOP instruction introduces
   a) Address
   b) Delay
   c) Memory location

Answer : b

8255 (Programmable Input – Output Port)

9. All the functions of the ports of 8255 are achieved by programming the bits of an internal register called
   a) data bus control
   b) read logic control
   c) control word register
   d) none
   Answer: c
10. The data bus buffer is controlled by
   a) control word register
   b) read/write control logic
   c) data bus
   d) none
   Answer: b
11. The port that is used for the generation of handshake lines in mode 1 or mode 2 is
   a) port A
   b) port B
   c) port C Lower
   d) port C Upper
   Answer: d

8257 (DMA Controller)

12. In 8257 (DMA), each of the four channels has
   a) a pair of two 8-bit registers
   b) a pair of two 16-bit registers
   c) one 16-bit register
   d) one 8-bit register
   Answer: b
13. The common register(s) for all the four channels of 8257 are
   a) DMA address register
   b) terminal count register
   c) mode set register and status register
   d) none of the mentioned
   Answer: c
14. In 8257 register format, the selected channel is disabled after the terminal count condition is reached when
   a) auto load is set
   b) auto load is reset
   c) TC STOP bit is reset
   d) TC STOP bit is set
   Answer: d
15. The pin that requests the access of the system bus is

a) HLDA
b) HRQ
c) ADSTB
Answer: b

8254 (Programmable Interval Timer)

16. The number of counters that are present in the programmable timer device 8254 is
    a) 1
    b) 2
    c) 3
    d) 4
    Answer: c
17. The mode that is used to interrupt the processor by setting a suitable terminal count is
    a) mode 0
    b) mode 1
    c) mode 2
    d) mode 3
    Answer: a
18. In control word register, if SC1=0 and SC0=1, then the counter selected is
    a) counter 0
    b) counter 1
    c) counter 2
    Answer: b
19. The counter starts counting only if
    a) GATE signal is low
    b) GATE signal is high
    c) CLK signal is low
    d) CLK signal is high
    Answer: b
20. The result of MOV AL, 65 is to store
    A. store 0100 0010 in AL
    B. store 42H in AL
    C. store 40H in AL
    D. store 0100 0001 in AL
    Answer: D

1. One operation that is not given by magnitude comparator

A. equal
B. less
C. greater
D. addition

2. Adding 1001 and 0010 gives output of

A. 1011

B. 1111
C. 0
D. 1010

3. Magnitude comparator compares using operation of

A. addition
B. subtraction
C. division
D. multiplication

4. A Boolean function may be transformed into

A. logical diagram
B. logical graph
C. map
D. matrix

5. Is it possible to find two algebric expressions that specify same function

A. no
B. yes
C. maybe
D. never

6. Using 10's complement 72532- 3250 is

A. 69282
B. 69272
C. 69252
D. 69232

7. X=1010100 and Y=1000011 using 2's complement X-Y is

A. 10111
B. 101101
C. 10011
D. 10001

8. X=1010100 and Y=1000011 using 1's complement Y-X is

A. -10111
B. -10011
C. -10001
D. -11001

9. Table that is not a part of asynchronous analysis procedure

A. transition table
B. state table
C. flow table
D. excitation table

10. Shift registers are used for

A. shifting
B. rotating
C. adding
D. both a and b

11. Two variables will be represented by

A. eight minterms
B. six minterms
C. five minterms
D. four minterms

12. Adjacent squares represents a

A. circle
B. variable
C. literal
D. minterm

13. Eight minterms will be used for

A. three variables
B. four variables
C. five variables
D. six variables

14. Minterms are arranged in map in a sequence of

A. binary sequence
B. gray code
C. binary variables
D. BCD code

15. A circuit that converts n inputs to 2^n outputs is called

A. encoder

B. decoder
C. comparator
D. carry look ahead

16. Encoders are made by three

A. AND gate
B. OR gate
C. NAND gate
D. XOR gate

17. Decoder is a

A. combinational circuit
B. sequential circuit
C. complex circuit
D. gate

18. BCD to seven segment is a

A. encoder
B. decoder
C. comparator
D. carry look ahead

19. One that is not type of flipflop is

A. JK
B. T
C. RS
D. ST

20. Flip-flops can be constructed with two

A. NAND gates
B. OR gates
C. AND gates
D. NOT gates

21. RS flip-flops are also called

A. RS latch
B. SR latch
C. TS latch
D. ST latch

22. Decimal digit in BCD can be represented by

A. 1 input line
B. 2 input lines
C. 3 input lines
D. 4 input lines

23. In BCD no. 1010 has

A. meaning
B. no meaning
C. value
D. Vcc

24. To perform product of maxterms Boolean function must be brought into

A. and terms
B. or terms
C. not terms
D. nand terms

25. In excitation table of D flipflop next state is equal to

A. present state
B. next state
C. input state
D. D state

26. X+y=z represents operation that is

A. AND
B. OR
C. NOT
D. XOR

27. Design procedure of combinational circuit involves

A. 4 steps
B. 5 steps
C. 6 steps
D. 8 steps

28. In design procedure input output values are assigned with

A. numeric values

B. letter symbols
C. 0's
D. 1's

29. Output of AND gates in SOP is connected to

A. NOT gates
B. OR gates
C. AND gates
D. XOR gates

30. Mod-6 and mod-12 counters are most commonly used in:

A. frequency counters

B. multiplexed displays

C. digital clocks

D. power consumption meters

31. How many illegitimate states has synchronous mod-6 counter ?

A.3
B.2
C.1
D.6

32. The clock signals are used in sequential logic circuits to

A.Tell the time of the day
B.Tell how much time has elapsed since the system was turned on
C.Carry parallel data signals
D.Synchronize events in various parts of system

33. To build a mod-19 counter the number of flip-flops required is

A.3
B.5
C.7
D.9

33. The main difference between JK and RS flip-flop is that

A.JK flip flop needs a clock pulse
B.There is a feedback in JK lip-lop
C.JK flip-flop accepts both inputs as 1
D.JK flip-flop is acronym of Junction cathode multivibrator

34. Which of the following unit will choose to transform decimal number to binary code ?

A.Encoder
B.Decoder

C.Multiplexer
D.Counter

35. Simplified form of the boolean expression (X + Y + XY) (X + Z) is

A.X + Y + Z

B.XY + YZ

C.X + YZ

D.XZ + Y

36. Which of the following boolean expressions is not logically equivalent to all of the rest ?

A.ab + (cd)' + cd + bd'
B.a (b + c) + cd
C.ab + ac + (cd)'
D.bd' + c'd' + ab + cd

37. Which of the following statements is true ?

A.(A + B) (A + C) = AC + BC
B.(A + B) (A + C) = AB + C
C.(A + B) (A + C) = A + BC
D.(A + B) (A + C)= AC + B

38. A graphical display of the fundamental products in a truth-table is known as

A.Mapping
B.Graphing
C.T-map
D.karnaugh-map

39. The minimum number of NAND gates required to implement the Boolean function. A + AB' + AB'C is equal to

A.zero

B.1

C.4

D.7

40. Which of the following logic expression is incorrect?

A.$1 \oplus 0 = 1$

B.$1 \oplus 1 \oplus 0 = 1$

C.$1 \oplus 1 \oplus 1 = 1$

D.$1 \oplus 1 = 0$

OPERATING SYSTEMS

1. In the process state transition diagram, the transition from the READY state to the RUNNING state indicates that:

a. A process was pre-empted by another process

b. A process has blocked for a semaphore or other operation

c. A process is done waiting for an I/O operation

d. A process was just created

Ans: a

2. Which of the following is shared between all of the threads in a process? Assume a kernel level thread implementation.

a. Register values

b. File descriptors

c. Scheduler priority

d. Local variables

Ans: b

3. Which of the following is not true?

a. Shortest Remaining Time next is the best preemptive scheduling algorithm in terms of turnaround time

b. Priority scheduling can suffer from starvation

c. Lottery scheduling is pre-emptive

d. Multi-level feedback queue guarantee equal time to all processes

Ans: d

4. A critical region is

a. The part of a program in which shared data is accessed

b. The most important part of the program

c. The part of the kernel that interfaces directly to the device controllers

d. The part of a program in which a bug would cause the program to exit

Ans: a

5. Which of the following is not used for synchronization?

a. The bakery algorithm

b. The banker's algorithm

c. Busy waiting with test and set

d. Monitors

Ans: b

6. Which of the following is not true of virtual memory?

a. It allows more efficient use of memory

b. It requires hardware support

c. It reduces the need for relocatable code

d. It requires the use of a disk or other secondary storage

Ans: d

7. Which of the following is not usually stored in a two-level page table?

a. Virtual page number

b. Physical page number

c. Dirty bit

d. Reference bit

Ans: a

8. Which of the following paging algorithms is most likely to be used in a virtual memory system?

a. FIFO

b. Second chance

c. Least Recently Used

d. Least Frequently Used

Ans: b

9. The purpose of a TLB is

a. To cache page translation information

b. To cache frequently used data

c. . To hold register values while a process is waiting to be run

d. To hold the start and length of the page table

Ans: a

10. Which of the following is not true about segmented memory management?

a. Segment length must be a multiple of the page size

b. Segmentation allows multiple linear address space in one process

c. Segmentation can be used with paging to keep segments partially resident in memory

d. A segment can be read-only for one process and read-write for another

Ans: a

11. System calls:

a. Provide a rich and flexible API for software developers

b. Often change dramatically between different releases of an operating system

c. Protect kernel data structures from user code

d. Allow the operating system to optimize performance

Ans: c

12. What is the main difference between traps and interrupts?

a. How they are initiated

b. The kind of code that's used to handle them

c. Whether or not the scheduler is called

d. How the operating system returns from them

Ans: a

13. Buffering is useful because

a. It makes it seem like there's more memory in the computer

b. It reduces the number of memory copies required

c. It allows all device drivers to use the same code

d. It allows devices and thee CPU to operate asynchronously

Ans: d

14. The main advantage of DMA is that it

a. Increases system performance by increasing concurrency

b. Allows the CPU to run faster

c. Reduces the traffic on the data bus

d. Removes the requirement that transfers be properly aligned

Ans: a

15. Which of the following disk seek algorithms would be the best choice to implement in a system that services an average of 5 disk requests per second?

a. FCFS

b. SSTF

c. SCAN

d. C-SCAN

Ans: a

16. Which of the following disk seek algorithms has the most variability in response time?

a. FCFS

b. SSTF

c. SCAN

d. C-SCAN

Ans: b

17. A typical hard drive has a peak throughput of about

a. 2×10^5 bytes per second

b. 2×10^6 bytes per second

c. 2×10^7 bytes per second

d. 2×10^8 bytes per second

Ans: c

18. RAID is a way to:

a. Increase hard drive latency and performance

b. Increase hard drive performance and decrease cost

c. Increase hard drive reliability and performance

d. Increase hard drive reliability and decrease cost

Ans: c

19. Which of these would not be a good way for the OS to improve battery lifetime in a laptop?

a. Shut down the hard drive until it's needed

b. Reduce the processor speed while it's idle

c. Turn off power to the memory

d. Shut down the modem when it's not connected

Ans: c

20. Which of the following is not included in an inode in Linux?

a. File owner

b. File name

c. File modification date

d. Pointer to the first data block

Ans: b

ITE208-Operating Systems

Multiple Choice Questions

1.Round robin scheduling is essentially the preemptive version of _____
1) FIFO
2) Shortest job first
3) Shortest remaining
4) Longest time first
Answer: FIFO

2.A page fault occurs
1) when the page is not in the memory
2) when the page is in the memory
3) when the process enters the blocked state
4) when the process is in the ready state
Answer: when the page is not in the memory

3.Let S and Q be two semaphores initialized to 1, where P0 and P1 processes the following statements wait(S);wait(Q); ---; signal(S);signal(Q) and wait(Q); wait(S);---;signal(Q);signal(S); respectively. The above situation depicts a _____ .
1) Semaphore
2) Deadlock
3) Signal
4) Interrupt
Answer: Deadlock

4.What is a shell ?
1) It is a hardware component
2) It is a command interpreter
3) It is a part in compiler
4) It is a tool in CPU scheduling
Answer: It is a command interpreter

5. Routine is not loaded until it is called. All routines are kept on disk in a relocatable load format. The main program is loaded into memory & is executed. This type of loading is called _____
1) Static loading
2) Dynamic loading
3) Dynamic linking
4) Overlays
Answer: Dynamic linking

6. In the blocked state
1) the processes waiting for I/O are found
2) the process which is running is found
3) the processes waiting for the processor are found
4) the process ready to execute
Answer: the processes waiting for I/O are found

7. What is the memory from 1K - 640K called ?
1) Extended Memory
2) Normal Memory
3) Low Memory
4) Conventional Memory
Answer: Conventional Memory

8.Virtual memory is _____.
1) An extremely large main memory
2) An extremely large secondary memory
3) An illusion of extremely large main memory
4) A type of memory used in super computers.
Answer: An illusion of extremely large main memory

9.The process related to process control, file management, device management, information about system and communication that is requested by any higher level language can be performed by _____.
1) Editors
2) Compilers
3) System Call
4) Caching
Answer: System Call

10.If the Disk head is located initially at 32, find the number of disk moves required with FCFS if the disk queue of I/O blocks requests are 98,37,14,124,65,67.

1) 310
2) 324
3) 315
4) 321

Answer: 321

11.The solution to Critical Section Problem is : Mutual Exclusion, Progress and Bounded Waiting.

1) The statement is false
2) The statement is true.
3) The statement is contradictory.
4) None of the above

Answer: The statement is true.

12.The problem of thrashing is effected scientifically by _____.

1) Program structure
2) Program size
3) Primary storage size
4) Secondary storgae

Answer: Program structure

13.Which of the following file name extension suggests that the file is Backup copy of another file ?

1) TXT
2) COM
3) BAS
4) BAK

Answer: BAK

14.The mechanism that bring a page into memory only when it is needed is called _____

1) Segmentation
2) Fragmentation
3) Demand Paging
4) Page Replacement

Answer: Demand Paging

15.Switching the CPU to another Process requires to save state of the old process and loading new process state is called as _____.

1) Process Blocking
2) Context Switch
3) Time Sharing
4) Context sharing

Answer: Context Switch

16.Which directory implementation is used in most Operating System?

1) Single level directory structure
2) Two level directory structure

3) Tree directory structure
4) Acyclic directory structure
Answer: Tree directory structure

17. A thread
1) is a lightweight process where the context switching is low
2) is a lightweight process where the context swithching is high
3) is used to speed up paging
4) none of the above
Answer: is a lightweight process where the context switching is low

18._____ is a high level abstraction over Semaphore.
1) Shared memory
2) Message passing
3) Monitor
4) Mutual exclusion
Answer: Monitor

19. Which module gives control of the CPU to the process selected by the short-term scheduler?
1) dispatcher
2) interrupt
3) long –term scheduler
4) short-term scheduler
Answer: dispatcher

20. In priority scheduling algorithm, when a process arrives at the ready queue, its priority is compared with the priority of
1) all process
2) currently running process
3) parent process
4) init process
Answer: currently running process

1. Assume that 'C' is a Counting Semaphore initialized to value '10'. Consider the following program segment:

P(C); V(C); P(C); P(C); P(C); V(C); V(C)

V(C); V(C); V(C); P(C); V(C); V(C); P(C)

What is the value of C?

(a) 6

(b) 12

(c) 8

(d) 10

Solution: Option (b)

2. Consider the following pseudo code fragment:

printf (“Hello”);

if(!fork( ))

printf(“World”);

Which of the following is the output of the code fragment?

(a) Hello Hello World World

(b) Hello World World

(c) Hello World

(d) Hello World Hello World

Solution: Option (c)

3. A scheduling algorithm assigns priority proportional to the waiting time of a process. Every process starts with priority zero (the lowest). The scheduler re-valuates the process priorities every T time units and decides the next process to schedule. Which one of the following is true if the processes have no I/O operations and all arrive at time zero?

a. This algorithm is equivalent to FCFS
b. This algorithm is equivalent to Round Robbin
c. This algorithm is equivalent to SJF
d. This algorithm is equivalent to Shortest Remaining Time First

Solution: Option (b)

4. The highest response ratio next Scheduling policy favors ‘X’ jobs, but is also limits the waiting time of ‘Y’ jobs. What are X and Y?

(a) Shorter Jobs, Low Priority Jobs

(b) Longer Jobs, High Priority Jobs

(c) Longer Jobs, Shorter Jobs

(d) Shorter Jobs, Longer Jobs

Solution: Option (d)

5. Which of the following instructions should be allowed only in Kernel Mode?

(a) Disable all interrupts

(b) Read the time-of-day clock

(c) Set the time-of-day clock

(d) Change the Memory Map

Solution: Option (a)

6. Consider the below code fragment:

```
if(fork k( ) = = 0)
{
a= a+5; printf("%d, %d \n", a, &a);
}
else
{
a= a – 5;
printf("%d %d \n", 0, &a);
}
```

Let u, v be the values printed by parent process and x, y be the values printed by child process. Which one of the following is true?

(a) u= x + 10 and v = y

(b) u= x + 10 and v≠ y

(c) u + 10= x and v = y

(d) u + 10= x and v ≠ y

Solution: Option (a)

7. There are 'm' processes and 'n' instances of a Resource provided. Each process needs 'P' instances of the resource. In which case deadlock will never occur?

(a) (P - 1) m + 1 ≤ n

(b) (P - 1) m ≤ n + 1

(c) (P - 1) m + 1 < n

(d) (P - 1) m ≤ n + 1

Solution: Option (a)

8. A system has a resource 'Z' with 20 instances; each process needs 5 instances to complete its execution. What is the minimum process in the system that may cause deadlock?

(a) 4

(b) 5

(c) 10

(d) 6

Solution: Option (b)

9. A solution to the Dining Philosopher's problem which avoids Deadlock can be:

(a) Ensure that all the Philosopher's pick up the left fork before the right fork

(b) Philosophers can select any fork randomly

(c) Ensure that all the Philosophers except one pick up the left fork while that particular philosopher pick up right fork before left fork

(d) Deadlock cannot be avoided

Solution: Option (c)

10. Which of the process transition is invalid?

(a) Run→ Ready

(b) Suspend wait→Suspend ready

(c) Wait/ Block→Run

(d) Run→Terminate

Solution: Option (c)

11. The process in which of the following states will be in secondary memory?

(a) New, Ready, Wait/Block

(b) New, Wait/Block, suspend wait, Suspend ready

(c) wait/Block, suspend wait, Suspend ready

(d) New, suspend wait, Suspend ready

Solution: Option (d)

12. Degree of multiprogramming is controlled by

(a) Long term schedule

(b) Short term schedule

(c) Medium term schedule

(d) Depends on number of CPU's

Solution: Option (a)

13. Consider a system with 'M' CPU processors and 'N' processes then how many processes can be present in ready, running and blocked state at maximum

(a) N, M, N

(b) N, M, M

(c) M, N, M

(d) N, N+M, M

Solution: Option (a)

14. The main function of dispatcher is:

(a) swapping a process to disk

(b) assigning ready process to the CPU

(c) suspending some of the processes when CPU load is high

(d) bring processes from the disk to main memory

Solution: Option (b)

15. Consider 'n' processes sharing the CPU in a round robin fashion. Assume that the context switch takes 's' seconds. What must be the quantum 'q' such that the overhead of context switching is minimized and at same time each process is getting guaranteed execution on the CPU atleast once in every 't' seconds?

(a) $q \leq (t - ns)/(n-1)$

(b) $q \leq (t - ns)/(n+1)$

(c) $q \geq (t - ns)/(n-1)$

(d) $q \geq (t - ns)/(n+1)$

Solution: Option (a)

16. When two or more processes trying to execute a set of instructions and if the output depends on the order of execution of the process, this is termed as:

(a) Critical section

(b) Race condition

(c) Synchronization

(d) Progress

Solution: Option (c)

17. Consider the processes P1, P2, P3, P4 whose arrival times are 0, 2, 3, 5 and burst times are 7, 4, 2, 4 respectively. What is the average TAT and average WT if they follow Shortest Remaining Time First scheduling algorithm?

(a) 8.5, 3.5

(b) 8, 3.75

(c) 6, 3

(d) 4,5

Solution: Option (b)

18. If α=0.4 and T_1=10. Consider the actual burst times of t_1, t_2, t_3 are 5, 7, 2 respectively. What is the predicted burst time of t_4 using Exponential Average method?

(a) 3.36

(b) 4.3

(c) 5.36

(d) 6.66

Solution: Option (c)

19. In Multi-Processing Operating Systems:

(a) Maximum utilization of CPU can be achieved

(b) Maximum throughput is achieved

(c) Maximum security can be achieved

(d) Not suitable for Real Time Applications

Solution: Option (a)

20. A system has ‘n’ processes and each process need 2 instances of a resource. There are n+1 instances of resource provided. This could:

(a) lead to deadlock

(b) lead to starvation & the deadlock

(c) never leads to deadlock

(d) leads to inconsistency

Solution: Option (c)

1) The following HTML element is used to display horizontal line
    A.
    B. <h>
    C. <hr>
    D. <h2>

Answer: C

2) The following HTML _____ element contains meta data which is not displayed inside the document.
    A. <form>
    B. <title>
    C. <table>
    D. <frame>

Answer: B

3) <h2 style="color:blue">I am Blue</h2> is ____ way of styling HTML elements
    A. Inline style
    B. Internal style
    C. External style
    D. Default

Answer: A

4) The following HTML element helps making animated text
    A.
    B. <ins>
    C. <mark>
    D. <marquee>

Answer: D

5) <font face="Lucida Calligraphy,Comic Sans MS,Lucida Console"> will specify _____ font
    A. Lucida Calligraphy
    B. Lucida Console
    C. first available font installed on computer
    D. last available font installed on computer

Answer: C

6) _____ is used to define a special CSS style for a group of HTML elements
    A. class attribute
    B. name attribute
    C. group attribute
    D. id attribute

Answer: A

7) The following HTML attribute is used to specify the URL of the html document to be opened when a hyperlink is clicked.
    A. SRC
    B. HREF
    C. LINK
    D. PATH

Answer: B

8) Which of these will create a shuffled list?
    A.
    B.
    C. <dl>
    D. Nested list

Answer: D

9) The _____ attribute defines the action to be performed when the form is submitted
    A. method attribute
    B. action attribute
    C. onSubmit attribute
    D. onClick attribute

Answer: B

10) Internet backbone refers to _____
    A. Web browser
    B. Web server
    C. Data
    D. Data route

Answer: C

11) _____ is referred to as Static Web

A. Web 1.0
B. Web 2.0
C. Web 3.0
D. Web 4.0

Answer: C

12) What does JSP stand for?

A. Java Scripting Pages
B. Java Service Pages
C. Java Server Pages
D. Java Script Program

Answer: C

13) How do you write "Hello World" in PHP?

A. using System.out.println
B. using Document.Write("Hello World")
C. "Hello World"
D. using echo("Hello World")

Answer: D

14) What are the parameters of the service method?

A. ServletRequest and ServletResponse
B. HttpServletRequest and HttpServletResponse
C. HttRequest and HttpResponse
D. Request and Response

Answer: B

15) How does servlet differ from CGI?

A. Light weight Process
B. Open source
C. Simple
D. Easy to remember

Answer: A

16) Which is the right declaration Tag in JSP?

A. <%! ..... %>)

B. <%@ .....%>)
C. <% ..... %>
D. <%= ..... %>)

Answer: A

17) The servlet life cycle has the following cycle.
A. Init destroy service
B. Service destroy
C. Init service destroy
D. Init service

Answer: C

18) How many times service() method will be executed in a servlet life cycle?
A. Twice
B. As many as client requests
C. As many as server responds
D. Once

Answer: B

19) In HTTP, which method gets the resource as specified in the URI
A. GET
B. POST
C. PUT
D. TRACE

ANSWER: A

20) Which of the following is not a session management technique in Servlet
A. Password <form> field
B. Hidden <form> field
C. Cookies
D. Session API

ANSWER A

Web Technology

OBJECTIVE TYPE QUESTIONS

1. What should be the first tag in any HTML document?
a. <head>
b. <title>
c. <html>
d. <document>

Ans :

2. **How can you make a bulleted list?**
   a. <list>
   b. <nl>
   c.
   d.
   Ans :

3. **What is the correct HTML for making a hyperlink?**
   a. ICT Trends Quiz
   b. ICT Trends Quiz
   c. <http://mcqsets.com
   d. url=”http://mcqsets.com”>ICT Trends Quiz
   Ans :

4. **Choose the correct HTML tag to make a text italic**
   a. <ii>
   b. <italics>
   c. <italic>
   d. <i>
   Ans :

5. **What is the correct HTML for adding a background color?**
   a. <body color=”yellow”>
   b. <body bgcolor=”yellow”>
   c. <background>yellow</background>
   d. <body background=”yellow”>
   Ans :

6. **Which attribute is used to name an element uniquely?**
   a. class
   b. id
   c. dot
   d. all of above
   Ans :

7. **What is the full form of HTTP?**
   a. Hyper text transfer protocol
   b. Hyper text transfer package
   c. Hyphenation text test program
   d. none of the above
   Ans :

8. **What is the correct way of describing XML data?**
   a. XML uses a DTD to describe data
   b. XML uses a description node to describe data
   c. XML uses XSL to describe the data
   d. XML uses a validator to describe the data
   Ans :

9. Which of the following can't be done with client-side JavaScript?

A. Validating a form
B. Sending a form's contents by email
C. Storing the form's contents to a database file on the server
D. None of the above

Ans :

10. What is the correct JavaScript syntax to write "Hello World"?

A. System.out.println("Hello World")
B. println ("Hello World")
C. document.write("Hello World")
D. response.write("Hello World")

Ans :

11. What is the correct syntax for referring to an external script called " abc.js"?

A. <script href=" abc.js">
B. <script name=" abc.js">
C. <script src=" abc.js">
D. None of the above

Ans :

12. How to create a Date object in JavaScript?

A. dateObjectName = new Date([parameters])
B. dateObjectName.new Date([parameters])
C. dateObjectName := new Date([parameters])
D. dateObjectName Date([parameters])

Ans :

13.
```
<script type="text/javascript">
x=4+"4";
document.write(x);
</script>
```
Output------?

A. 44
B. 8
C. 4
D. Error output

Ans :

14.
```
<script type="text/javascript">
var s = "9123456 or 80000?";
var pattern = /\d{4}/;
var output = s.match(pattern);
document.write(output);
</script>
```
A. 9123
B. 91234
C. 80000
D. None of the above

Ans :

15. What makes Ajax unique?
    A. It works as a stand-alone Web-development tool.
    B. It works the same with all Web browsers.
    C. It uses C++ as its programming language.
    D. It makes data requests asynchronously.
    Ans :

16. What does the XMLHttpRequest object accomplish in Ajax? | Ajax
    A. It's the programming language used to develop Ajax applications.
    B. It provides a means of exchanging structured data between the Web server and client.
    C. It provides the ability to asynchronously exchange data between Web browsers and a Web server.
    D. It provides the ability to mark up and style the display of Web-page text.
    Ans :

17. AJAX made popular by | Ajax
    A. Microsoft
    B. IBM
    C. Sun Micro system
    D. Google
    Ans :

18. Which one of the following function is used to start a session?
    A. start_session()
    B. session_start()
    C. session_begin()
    D. begin_session()
    Ans :

19. If the directive session.cookie_lifetime is set to 3600, the cookie will live until..
    A. 3600 sec
    B. 3600 min
    C. 3600 hrs
    D. the browser is restarted
    Ans :

20. When you want to store user data in a session use the . . . . array.
    A. $_SESSION
    B. SYS_SESSION
    C. $SESSION
    D. $_SESSIONS
    Ans :

1. What does the following bit of JavaScript print out?

```
var a = [1,,3,4,5];
console.log([a[4], a[1], a[5]]);
```

a) **5, undefined,undefined**
b) 5,3,undefined
c) 5,0,undefined
d) 5,null,undefined

2. Web applications are frequently constructed as a distributed system utilizing a multitiered architecture with three tiers. They are:
   a) **Browser, Server, Database**
   b) Model,View, Controller
   c) Browser,Service,Database
   d) Model,View,Service
3. Which selector is used by applying a specific style for a group of elements?
   a)class
   b)style
   c)h1
   d)id

4. Which method is used to remove the first element of an Array object?
   a)pop()
   b)push()
   c)shift()
   d)unshift()

5. Which of these methods returns x ,rounded downwards to the nearest integer?

   a)ceil()

   b)floor()

   c)abs()

   d)round()

6. Where in an HTML document is the correct place to refer to an external style sheet?

a) At the top of the document
b) At the end of the document
c) In the <body> section
d) In the <head> section

7. Which is the correct CSS syntax?

a) body:color=black
b) {body;color:black}
c) {body:color=black(body}
d) body {color: black}

8. What is the correct CSS syntax for making all the <p> elements bold?

a) <p style="text-size:bold">
b) <p style="font-size:bold">
c) p {font-weight:bold}
d) p {text-size:bold}

9. To link your Web page to a style sheet, you must use the _____ tag.

a) <STYLESHEET>
b) <STYLE>
c) <LINK>
d) <WEB>

10.How can you create an e-mail link?

a) <a href="mailto:xxx@yyy">
b) <mail href="xxx@yyy">
c) <mail>xxx@yyy</mail>
d) <a href="xxx@yyy">

Which of these tags are all <table> tags?
A. <table><head><tfoot>
B. <thead><body><tr>
C. <table><tr><td>
D. <table><tr><tt>
ANSWER: C

How can you make a list that lists the items with numbers?
A. <list>
B.
C.
D. <dl>
ANSWER: B
Choose the correct HTML to left-align the content inside a tablecell
A. <tdleft>
B. <td leftalign>

C. <td valign="left">
D. <td align="left">
ANSWER: D
HTTP is
A. a network layer protocol
B. an application layer protocol
C. a transport layer protocol
D. a network interface layer protocol
ANSWER: B
Click.This code
A. Opens a blank window
B. Opens 1.html in the same window
C. Opens 1.html in new window
D. Opens default page in new window
ANSWER: C
In HTTP, which method gets the resource as specified in the URI
A. GET
B. POST
c. PUT
D. TRACE
ANSWER: A
Which of these is not a valid attribute of <tr> element?
A. valign
B. bgcolor
C. align
D. rowspan
ANSWER: D
Which attribute is used to specify the path of the image in <img> element?
A. href
B. src
C. path
D. link
ANSWER: B