	Questions	Choices	Key
1.	What does the following declaration mean? int (*ptr)[10];	1. ptr is array of pointers to 10 integers 2. ptr is a pointer to an array of 10 integers 3. ptr is an array of 10 integers 4. ptr is an pointer to array	2
2.	Which header file should be included to use functions like malloc() and calloc()?	1. memory.h 2. dos.h 3. string.h 4. stdlib.h	4
3.	Which of the following statements should be used to obtain a remainder after dividing 3.14 by 2.1 ?	1. rem = 3.14 % 2.1; 2. rem = modf(3.14, 2.1); 3. rem = fmod(3.14, 2.1); 4. Remainder cannot be obtain in floating point division.	3
4.	Which bitwise operator is suitable for turning off a particular bit in a number?	1. & operator 2. && operator 3. || operator 4. ! operator	1
5.	How will you free the allocated memory ?	1. remove(var-name); 2. free(var-name); 3. delete(var-name); 4. dalloc(var-name);	2
6.	The library function used to find the last occurrence of a character in a string is	1. strnstr() 2. laststr() 3. strrchr() 4. strstr()	3
7.	What do the 'c' and 'v' in argv stands for?	1. 'c' means argument count 'v' means argument vector 2. 'c' means argument count 'v' means argument vertex 3. 'c' means argument control 'v' means argument vector 4. 'c' means argument configuration 'v' means argument visibility	3
8.	Which of the following special symbol allowed in a variable name?	1. * (asterisk) 2. | (pipeline) 3. - (hyphen) 4. _ (underscore)	4
9.	How is a J-K flip-flop made to toggle?	1. J = 0, K = 0 2. J = 0, K = 1 3. J = 1, K = 0 4. J = 1, K = 1	4
10.	A ripple counter's speed is limited by the propagation delay of.	1. each flip-flop 2. all flip-flops and gates 3. only circuit gates 4. none	1
11.	Memory elements in clocked sequential circuits are called.	1. latches 2. flipflop 3. signals 4. gates	2
12.	The clock signals are used in sequential logic circuits to	1. Tell the time of the day 2. Tell how much time has elapsed since the system was turned on 3. Carry parllel data signals 4. Synchronize events in various parts of system	4
13.	It is difficult to design asynhronous sequential circuit because.	1. External clock is to be provided 2. It is more complex 3. It is using Flip flops 4. Generally they involve stability problem	2
14.	NOR Gate does NOT follow	1. Commutative Law 2. Distributive Law 3. Associative Law 4. DeMorgan's Theoremj	3
15.	Which statement is true:	1. All canonical form are standard form 2. All standard form are canonical forms 3. Standard form must consists of minterms 4. Canonical form can consist of a term with a literal missing	

16.	The combination of Sixteen adjacent squares in four variable K-map represent the function equal to	1. One literal 2. Unity 3. Zero 4. Four literal	4
17.	K-map follow following code for marking adjacent variables	1. 84-2-1 2. 8421 3. Gray Code 4. 2421	3
18.	Which data structure is used during recursion	1. merge sort 2. stack 3. list 4. linear search	2
19.	Divide and conquer mechanism is used in	1. selection sort 2. merge sort 3. quick sort and merge sort 4. indexed sequential search	3
20.	How will you handle the overflow condition of a linked stack through code(note: new_node is a newly created node in a memory)	1. if(new_node==null) 2. if(new_node==0) 3. if(top==size) 4. none	1
21.	What is the worst case for Selection sort	1. O(log n) 2. O(n) 3. O(2n) 4. O(n^2)	4
22.	What is the precondition for binary search	1. Un sorted array to be the input 2. Have to consider only n/2 elements 3. all elements should be sorted 4. none	3
23.	What is the best case for Selection sort	1. O(log n) 2. O(2n) 3. O(1) 4. O(n^2)	4
24.	For a node at position n its left and right child are given by the relations _____(consider the index starts from 0)	1. left child = 2n+1 right child= 2n+2 2. left child = 2n+2 right child= 2n+1 3. left child = 2n-1 right child= 2n-2 4. None	1
25.	Which searching technique is better, if unsorted array is given as input	1. Radix search 2. Linear search 3. Binary search 4. Indexed sequential search	2
26.	Which of the following tree may have smaller elements in its left subtree and larger element in its right subtree	1. B+ Tree 2. AVL Tree 3. Binary Tree 4. Binary Search Tree	4
27.	Which of the following algorithm is used to find the shortest path between two nodes in graph	1. Kruskal's algorithm 2. Prim's algorithm 3. Dijiktra's algorithm 4. Merge algorithm	3
28.	Which of the following case does not exist in complexity theory?	1. Best Case 2. Worst Case 3. Average Case 4. Null Case	4
29.	The operation of processing each element in the list is known as	1. Traversal 2. Sorting 3. Merging 4. Inserting	1
30.	Which of the following data structure is linear data structure?	1. Array 2. Tree 3. Graph 4. None	1
31.	The complexity of Merge sort algorithm is	1. O(n) 2. O(nlogn) 3. O(logn)	2

		4. O(1)	
32.	Binary search algorithm cannot be applied to	1. sorted linked list 2. sorted binary trees 3. sorted linear array 4. pointer array	1
33.	The situation when in a linked list START=NULL is	1. overflow 2. underflow 3. housefull 4. saturated	2
34.	Which of the following name does not relate to stacks?	1. FIFO list 2. LIFO list 3. Piles 4. Push-down list	1
35.	A data structure where elements can be added or removed at either end but not in the middle	1. Linked lists 2. Stacks 3. Queues 4. Deque	3
36.	Given inorder :EACKFHDBG, Find the preorder	1. FAEKCDBHG 2. FAEKCDHGB 3. EAFKHDCBG 4. FEAKDCHBG	2
37.	The space factor when determining the efficiency of algorithm is measured by	1. Counting the maximum memory needed by the algorithm 2. Counting the minimum memory needed by the algorithm 3. Counting the average memory needed by the algorithm 4. Counting the maximum disk space needed by the algorithm	4
38.	What will be the output of the following code: int a = 10; printf("%d",&a);	1. 10 2. -10 3. 10.000 4. none	4
39.	unsingned int a = 10; printf("%d",a-20);	1. 10 2. -10 3. 20 4. -20	2
40.	In the following print statement, without changing the string "VIT UNIVERSITY", how do you print "VIT" alone in the output.	1. printf("*3s","VIT UNIVERSITY"); 2. printf("\3s", "VIT UNIVERSITY"); 3. printf("%3s", "VIT UNIVERSITY"); 4. printf("%.3s", "VIT UNIVERSITY");	4
41.	How do you print largest of two numbers in the following statement: #define big(a,b) .....? printf("%d",big(5,77));	1. Not possible 2. if a>b return a else b 3. a>b ? a:b 4. None	3
42.	How can you access the address of register variable in C? ex: register int i;	1. printf("%x", &i); 2. printf("%u", &i); 3. printf("%d", &i); 4. None	4
43.	Write the answer of the following statement: (note: program have no errors) char a[5]="vit"; char b[] = {'v','i','t'}; if(a==b) printf("same"); else printf("not same");	1. same 2. not same 3. None 4. error	2
44.	Identify the invalid statement from the following	1. break(0); 2. for (; ;); 3. if (1) 4. while(false)	1
45.	Choose the correct answer for the given expression: 1+2-3*4%5	1. -2 2. 0 3. 1 4. -1	3
46.	Application software...	1. Tells the computer components what to do 2. Let's the computer interact with the user 3. Let's the user perform a task 4. Is encoded on a piece of hardware	3

47.	In the following code, the P2 is Integer Pointer or Integer? typedef int *ptr; ptr p1, p2;	1. Integer 2. Integer pointer 3. Error in declaration 4. None	1
48.	Which of the following gives the memory address of a variable pointed to by pointer a?	1. a; 2. *a; 3. &a; 4. address(a);	1
49.	What will be the output of the following code #include<stdio.h> void main() { int i; int a[3]=5; for (i=2;i>=0;i--) { printf("%d\n",a[i]); } }	1. 5 0 0 2. 5 null null 3. 5 garbage garbage 4. 0 0 5	
50.	Which of the following factors does not affect the total time taken to generate by using computers?	1. complexity of calculations to be performed 2. power of the processor 3. speed of the printer 4. place where the computer is kept	3
51.	_____ is used to store data in registers	1. D flip flop 2. JK flip flop 3. SR flip flop 4. None	1
52.		1. a = 0, b = 0, c = 1, d = 0 2. a = 0, b = 0, c = 0, d = 0 3. a = 0, b = 1, c = 1, d = 0 4. a = 0, b = 1, c = 1, d = 1	
53.		1. 1, 2, 3 and 4 2. 1 3. 2 4. 3 and 4	
54.		1. Yes 2. No 3. None 4. Error	

55.	In a C program, following variables are defined:
	
	float x = 2.17;
	double y = 2.17;
	long double z = 2.17;
	Which of the following is correct way for printing these variables via printf.
		1. printf("%f %Lf %lLf",x,y,z);
		2. printf("%f %lf %Lf",x,y,z);
		3. printf("%f %ff %Lff",x,y,z);
		4. printf("%f %lf %LLf",x,y,z);
			2

56.	Predict the output of the above code	1. Infinite loop 2. 9 8 7 6 5 4 3 2 1 3. 9 7 5 3 1 4. 9 7 5 3	
57.	Predict the output	1. 16 21 2. 7 12 17 22 3. 5 10 15 20 4. 9 7 5 3	
58.		1. No compile error and it will not print anything 2. Compile Error because any goto label isn't allowed in for loop in C 3. No compile error but behaviour of the program would depend on C compiler due to nondeterministic behaviour of goto statement 4. No compile error and it will print GeeksQuiz 10 times because goto label LOOP wouldn't come in effect	

59.	Consider the following program fragment
	
	if(a > b)
	
	if(b > c)
		1. a<=b
		2. a > b and b <= c
		3. b>c
		4. b >= c and a <= b
			2

	s1; else s2; s2 will be executed if		

60.	Consider the following program fragment
	i=6720;
	j=4;
	while (i%j)==0
	{
	i=i/j;
	j=j+1;
	}
	On termination j will have the value
		1. 9
		2. 4
		3. 8
		4. 6720
			3

61.	What does the following C statement mean? scanf("%10d", &a);	1. compiler error 2. runtime error 3. Read maximum 10 characters from console 4. Read exactly 10 characters from console	3

62.	Find the output
	#include <stdio.h>
	int main()
	{
	int i = 1, 2, 3;
	printf("%d", i);
	return 0;
	}
		1. 1
		2. 2
		3. 3
		4. error
			4

63.	Find out the output	1. IF 2. ELSE IF 3. ELSE 4. error	

64.	Find the output
	#include <stdio.h>
	int main()
	{
	int i = (1, 2, 3);
	printf("%d", i);
	return 0;
	}
		1. 1
		2. 2
		3. 3
		4. error
			4

65.	Find the output	1. 1 2. 0 3. 5	

		4. error	
66.		1. 10 10 10 10 10 2. 10 11 12 13 14 3. error 4. 10	
67.	Find the output of the below program	1. Quiz 2. program 3. compile time error 4. run time error	
68.	Output of following program?	1. 81 2. 123456788 3. 123456781 4. error	
69.	What is the output of the below program? #include <stdio.h>	1. welcome 2. Quiz 3. sjt419 4. error	
70.	Predict the output of below program?	1. 03 2. 05 3. 3 4. 5	
71.	Find the output of the below code	1. "raj % kumar % c" 2. raj % kumar % c 3. raj kumar 4. error	

72.	What is the output of the following code snippet?
	`#include<stdio.h>`
	`main()`
	`{`
	`int x = 5;`
	`if(x=5)`
	`{`
	`if(x=5) break;`
	`printf("Hello");`
	`}`
	`printf("Hi");`
	`}`
		1. compile error
		2. Hi
		3. HelloHi
		4. runtime error
			1

73.	What is the output of following program?
	`# include <stdio.h>`
	`int main()`
	`{`
	`char str1[] = "GeeksQuiz";`
	`char str2[] = {'G', 'e', 'e', 'k', 's', 'Q', 'u', 'i', 'z'};`
	`int n1 = sizeof(str1)/sizeof(str1[0]);`
		1. n1 = 10, n2 = 9
		2. n1 = 9, n2 = 9
		3. n1 = 10, n2 = 10
		4. n1 = 9, n2 = 10
			1

	int n2 = sizeof(str2)/sizeof(str2[0]);
	printf("n1 = %d, n2 = %d", n1, n2);
	return 0;
	}		

74.	In below program, what would you put in place of "?" to print "Quiz"?
	#include <stdio.h>
	int main()
	{
	char arr[] = "GeeksQuiz";
	printf("%s", ?);
	return 0;
	}
		1. arr
		2. (arr+5)
		3. (arr+4)
		4. not possible
			2

75.	Linker generates ___ file	1. object code 2. executable code 3. assembly code 4. error	2
76.	What is the common issue in signed numbers and 1's complement representation	1. A human readable 2. 2 representations for 0 3. 2 representations for 1 4. 2 representations for every number	2
77.	Perform the subtraction with the following unsigned binary numbers by taking the 2's complement of the subtrahend 11010 - 10000 is	1. 01010 2. 1100 3. 101010 4. 1011	4
78.	When Qn and Qn+1 = 01 then the action taken is	1. subtract multiplicand from partial product 2. add multiplicand to partial product 3. arithmetic shift right 4. logical shift right	2
79.	Which algorithm is not used for performing binary division	1. restoring algorithm 2. non-restoring division 3. booth's algorithm 4. comparison method	4
80.	Subtract the two floating numbers 0.67880e+4 and .67320e+4. What is the value of the number after normalization?	1. 56 2. 0.56e-2 3. 560 4. 0.056	3
81.	What is exponent underflow in IEEE 754 single precision format?	1. Exponent is equal to zero 2. Exponent is greater than 127 3. Exponent is smaller than -127 4. Exponent is equal to 127	3
82.	Magnetic tape is a	1. Serial access medium 2. Random access medium 3. A parallel access medium 4. None	1
83.	In which Access method , Cycle time is Same for all the blocks of memory	1. Random Access 2. Sequential Access 3. Direct Access 4. Semi Random Access	1
84.	Memory Address locations are specified using which data representation	1. Sign-magnitude 2. one's complement 3. Unsigned 4. two's complement	3
85.	The address where data is available as part of the instruction is called as ..... addressing mode	1. Implied 2. Immediate 3. Indirect 4. Direct	2
86.	To avoid the race condition, the number of processes that may be simultaneously inside their critical section is	1. 8 2. 1 3. 0	1

		4. 16	
87.	Fork is	1. the dispatching of a task 2. the creation of a new job 3. the creation of a new process 4. increasing the priority of a task	3
88.	Thrashing	1. is a natural consequence of virtual memory systems 2. can always be avoided by swapping 3. always occurs on large computers 4. can be caused by poor paging algorithms	4
89.	Interprocess communication	1. is required for all processes 2. is usually done via disk drives 3. is never necessary 4. allows processes to synchronize activity	4
90.	The principle of locality of reference justifies the use of	1. Reenterable 2. non reusable 3. virtual memory 4. cache memory	4
91.	Fragmentation of the file system	1. occurs only if the file system is used improperly 2. can always be prevented 3. can be temporarily removed by compaction 4. is a characteristic of all file systems	3
92.	Page stealing	1. is a sign of an efficient system 2. is taking page frames from other working sets 3. should be the tuning goal 4. is taking larger disk spaces for pages paged out	2
93.	.. .. refers to a situation in which a process is ready to execute but is continuously denied access to a processor in deference to other processes.	1. Synchronization 2. Mutual Exclusion 3. Dead lock 4. Starvation	4
94.	..... provides a larger sized of virtual memory but require virtual memory which provides multidimensional memory.	1. Paging method 2. Segmentation method 3. Paging and segmentation method 4. Demand paging	2
95.	The ..... policy restricts scanning to one direction only	1. SCAN 2. C-SCAN 3. N-Step SCAN 4. LOOK	2
96.	The decoded instruction is stored in _____	1. IR 2. PC 3. Registers 4. MDR	1
97.	The type of memory assignment used in Intel processors is ____	1. Little Endian 2. Big Endian 3. Medium Endian 4. None	1
98.	To get the physical address from the logical address generated by CPU we use ___	1. MAR 2. MMU 3. Overlays 4. TLB	2
99.	During transfer of data between the processor and memory we use _____	1. Cache 2. TLB 3. Buffers 4. Registers	4
100.	The instructions like MOV or ADD are called as _____	1. OP-Code 2. Operators 3. Commands 4. None	1
101.	Instructions which wont appear in the object program are called as ____	1. Redundant instructions 2. Exceptions 3. Comments 4. Assembler Directives	4

102.	The program is divided into operable parts called as _____	1. Frames 2. Segments 3. Pages 4. Sheets	2
103.	The pipelining process is also called as _____	1. Superscalar operation 2. Assembly line operation 3. Von neumann cycle 4. None	2
104.	Each stage in pipelining should be completed within ___ cycle	1. 1 2. 2 3. 3 4. 4	1
105.		1. 40 2. 5 3. 15 4. 10	
106.	If the task executes the service codes and gets the system resources at that instance, it is said to be in	1. idle 2. running 3. blocked 4. ready	
107.	The time elapsed between the job submission and its completion is	1. turnaround time 2. response time 3. burst time 4. waiting time	3
108.	Which of the following level of storage is not managed by operating system?	1. cache 2. register 3. magnetic disk 4. solid state disk	1
109.	Which of the following process scheduling algorithm may lead to starvation	1. multilevel queue 2. first come first served 3. shortest job next 4. round robin	3
110.	Consider three CPU-intensive processes, which require 10, 20 and 30 time units and arrive at times 0, 2 and 6, respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end.	1. 1 2. 2 3. 3 4. 4	2
111.	Which of the following is not shared by the threads of the same process?	1. stack 2. file descriptor table 3. address space 4. message queue	1
112.	All resources are shared and integrated within one OS, in computing paradigm named	1. Distributed computing 2. Parallel computing 3. Cloud computing 4. Centralized computing	4
113.	In a distributed system, information is exchanged through	1. Memory sharing 2. None 3. Message passing 4. Exceptions	3
114.	All resources are tightly coupled in computing paradigm of	1. Cloud computing 2. Centralized computing 3. Distributed computing 4. Parallel computing	4
115.	A set of highly integrated machines that run same process in parallel is known to be	1. Tightly coupled 2. Loosely coupled 3. Space based 4. Peer-to-Peer	1
116.	DLP stands for	1. Data-level processing 2. Degree-level processing 3. Data-level parallelism	3

		4. Degree-level parallelism	
117.	Cloud computing and web service platforms are focused on applications like	1. HPC 2. HTC 3. HCC 4. HRC	1
118.	RPC connectors and message queues are mechanisms for	1. Message retrieving 2. Message passing 3. Message delivering 4. Message Sync-ing	2
119.	Grid and cloud platforms are regarded as	1. Parallelized services 2. Innovative services 3. Utility service providers 4. Cyber services	3
120.	In grid computing model, servers or personal computers run	1. Dependently 2. Independently 3. Concurrently 4. Horizontally	2
121.	HTC stands for	1. High-turning computing 2. High-tabulation computing 3. High-technology computing 4. High-throughput computing	4
122.	One of the first uses of grid computing was breaking of a	1. Critical computed code 2. Tabulated code 3. Cryptographic code 4. Decryptographic code	4
123.	Speed of HPC systems has enhanced from Gflops to	1. Tflops 2. Pflops 3. Eflops 4. Mflops	2
124.	Centralized computing covers many data centers and	1. Minicomputers 2. Mainframe computers 3. Supercomputers 4. Microcomputers	3
125.	Primary goal for HTC paradigm is to provide	1. Low-flux computing 2. High-flux computing 3. Computer utilities 4. High ratio Identification	2
126.	Differentiate between Computer Architecture & Computer Organization	1. Computer architecture deals with the functional behaviour of a computer system as viewed by a programmer & Computer organization deals with structural relationships that are not visible to the programmer 2. Computer organization deals with the functional behaviour of a computer system as viewed by a programmer & Computer Architecture deals with structural relationships that are not visible to the programme 3. Computer organization deals with Functional operation of the individual hardware units within a computer system, and the flow of information and control among them & Computer Architecture deals with clock frequency or the size of the physical memory 4.None	1
127.	The addressing mode which makes use of in-direction pointers is _____	1.Indirect addressing mode 2. Index addressing mode 3. Relative addressing mode 4. Offset addressing mode	1
128.	If the memory address space is 256 MB and the word size is 16 bits, then bits needed to access each word	1. 26 2. 24 3. 27 4. 28	
129.	Represent (-14) in signed magnitude form	1. 10001110 2. 01111110 3. 11111110	1

		4. 10000001	
130.	Add the numbers in signed magnitude and give the value of AVF in each case? (a) (+45) + (+31) (b) (+45) - (+31)	1. 1,0 2. 0,0 3. 0,1 4. 1,1	
131.	The best way to avoid divide overflow condition is	1. divide stop 2. Provide an Interrupt Request 3. Suspend the Program 4. Floating point representation of data	4
132.	The memory reference is intercepted and the cache is checked first for a hit, and if a miss occurs then the access to main memory is started. A cache that operates in this manner is called a ……	1. Look Aside cache 2. Look through Cache 3. Look inside only cache 4. Look outside cache	2
133.	In which cache organization, index field is not required during block identification	1. Direct mapping 2. set associative 3. fully associative 4. 2-way associative	2
134.	In a daisy chain priority interrupt the condition to pass the acknowledge signal to the next device is	1. PI=1 & RF=1 then PO=0 2. PI=1 & RF=0 then PO=1 3. PI=0 & RF=1 then PO=0 4. PI=0 & RF=0 then PO=0	1
135.	In a virtual memory system, the addresses used by the programmer belongs to	1. memory space. 2. address space. 3. main memory address. 4. physical addresses.	2
136.	The method for updating the main memory as soon as a word is removed from the Cache is called	1. Write-through 2. write-back 3. protected write 4. cache-write	2
137.	Zero address instruction format is used for	1. RISC architecture. 2. CISC architecture. 3. Von-Neuman architecture. 4. Stack-organized architecture.	4
138.	Address symbol table is generated by the	1. memory management software. 2. assembler. 3. match logic of associative memory. 4. generated by operating system.	2
139.	Stack overflow causes	1. Hardware interrupt. 2. External interrupt. 3. Internal interrupt. 4. Software interrupt.	3
140.	Arithmetic shift left operation	1. Produces the same result as obtained with logical shift left operation. 2. Causes the sign bit to remain always unchanged. 3. Needs additional hardware to preserve the sign bit. 4. Is not applicable for signed 2's complement representation.	1
141.	Which of the following is NOT a valid deadlock prevention scheme?	1. Release all resources before requesting a new resource 2. Number the resources uniquely and never request a lower numbered resource than the last one requested. 3. Never request a resource after releasing any resource 4. Request and all required resources be allocated before execution.	3
142.	Let m[0]…m[4] be mutexes (binary semaphores) and P[0] …. P[4] be processes. Suppose each process P[i] executes the following: wait (m[i]); wait(m[(i+1) mode 4]); ------ release (m[i]); release (m[(i+1)mod 4]);	1. Thrashing 2. Deadlock 3. Starvation, but not deadlock 4.None	2

	This could cause		
143.	Consider a virtual memory system with FIFO page replacement policy. For an arbitrary page access pattern, increasing the number of page frames in main memory will	1. Always decrease the number of page faults 2. Always increase the number of page faults 3. Some times increase the number of page faults 4. Never affect the number of page faults	3
144.	Which of the following requires a device driver?	1. Register 2. Cache 3. Main memory 4. Disk	4
145.	Process is	1. a program in execution 2. a job in secondary memory 3. contents of main memory 4. program in High level language kept on disk	1
146.	A system program that sets up an executable program in main memory ready for execution is	1. loader 2. linker 3. assembler 4. compiler	1
147.	Fragmentation of the file system	1. can be temporarily removed by compaction 2. is a characteristic of all file systems 3. can always be prevented 4. occurs only if the file system is used improperly	1
148.	A single processor system has three resource types X, Y and Z, which are shared by three processes. There are 5 units of each resource type. Consider the following scenario, where the column alloc denotes the number of units of each resource type allocated to each process, and the column request denotes the number of units of each resource type requested by a process in order to complete execution. Which of these processes will finish LAST? alloc request X Y Z X Y Z P0 1 2 1 1 0 3 P1 2 0 1 0 1 2 P2 2 2 1 1 2 0	1. P0 2. P1 3. P2 4. none	3
149.	Consider three processes (process id 0, 1, 2 respectively) with compute time bursts 2, 4 and 8 time units. All processes arrive at time zero. Consider the longest remaining time first (LRTF) scheduling algorithm. In LRTF ties are broken by giving priority to the process with the lowest process id. The average turn around time is:	1. 13 units 2. 14 units 3. 15 units 4. 16 units	1
150.	Normally user programs are prevented from handling I/O directly by I/O instructions in them. For CPUs having explicit I/O instructions, such I/O protection is ensured by having the I/O instructions privileged. In a CPU with memory mapped I/O, there is no explicit I/O instruction. Which one of the following is true for a CPU with memory mapped I/O?	1. I/O protection is ensured by operating system routine(s) 2. I/O protection is ensured by a hardware trap 3. I/O protection is ensured during system configuration 4. I/O protection is not possible	1
151.	A database is a	1. collection of files 2. collection of data 3. collection of interrelated data 4. collection of multimedia data	3
152.	Data Dictionary stores	1. User data 2. System data	3

		3. Data about data 4. different view of data	
153.	The following data type is specific to Oracle product	1. varchar 2. varchar2 3. integer 4. number(p,s)	2
154.	The data mapping is done at	1. physical level 2. conceptual level 3. view level 4. high level	2
155.	A transaction is a	1. sequence of instructions 2. sequence of instructions for a task 3. sequence of instructions for a sequence of job 4. sequence of instructions for consistent database	2
156.	Concurrency control is handled in the following environment	1. Single user dbms 2. Multi-user dbms 3. client-server dbms 4. Multi-tier dbms	2
157.	A following is the lock meant for a single user operations	1. S-Lock 2. X-Lock 3. I-Lock 4. none	2
158.	The basic i/o in database is done in terms of	1. bits 2. bytes 3. blocks 4. words	3
159.	ODBC component is used in the following level	1. physical level 2. conceptual level 3. view level 4. high level	
160.	Relationship between entity sets of cardinality either 1:1 or 1:M or M:1 is mapped into relational schema by	1. Primary Key 2. Unique Key 3. Foreign Key 4. Composite Key	
161.	A relationship is said to be recursive if	1. a weak enity set is associated with its strong entity set 2. an entity set participate in relationship more than once in different roles 3. more than one entity set participate in relationship 4. an entity set is totally participating in a relationship	2
162.	The job of pre-compiler component of database systems is	1. to separate DML and host language statements in application program 2. to separate high level DML statements from low level DML statements in application program 3. to club DML and host language statements in application program 4. to club high level DML statements and low level DML statements in application program	2
163.	Join operation that involves in-equality in it is called	1. Equi Join 2. Theta Join 3. Inner Join 4.Outer Join	2
164.	Which among the following is not desirable property of a transaction in database system?	1. Atomcity 2. Consistency 3. Insulation 4. Durability	3
165.	Which recovery scheme in database system is not going to make use of system log?	1. Shadow Paging 2. Immediate Update 3. Differed Update 4.Delayed Update	1
166.	The concept that gives freedom to modify schema at one level with out need to make those changes at schemas at higher levels is called	1. Data Isolation 2. Data Insulation 3. Data Inconsistency 4. Data Independence	4

167.	Which among the following is true with respect to view of the database?	1. It is virtual in nature and consumes no memory 2. It is non-virtual in nature and consumes memory 3. It is physical in nature and consumes memory 4. It is logical in nature and consumes memory	1
168.	Which pair of operations in a schedule of transactions is called conflict operations?	1. Operations belong to different transactions, both accessing different data items and atleast one of them be write operation 2. Operations belong to same transaction, both accessing different data items and at least one of them be read operation 3. Operations belong to different transactions, both accessing different data items and at least one of them be write operation 4. Operations belong to different transactions, both accessing different data items and at least one of them be read operation	
169.	Which among the following locks is an exclusive lock?	1. read lock 2. write lock 3. binary lock 4. multi-mode lock	2
170.	Which is responsible for ensuring Isolation property	1. Transaction- management component 2. Recovery- management component 3. Concurrency control component 4. None	3
171.	If the bucket for the record is already full then the record is placed in other bucket based on some policy called -----	1. Closed Hashing 2. open Hashing 3. open Hashing and Closed Hashing 4. None	
172.	In Basic Timestamp Ordering algorithm	1. Younger transactions are executed first 2. Older transactions are restarted 3. Older transactions are executed first 4. Both older and younger transactions are restarted	
173.	Which of the following methods is used to avoid cascading rollback?	1. Basic 2PL 2. Strict 2PL 3. Linear 2PL 4. None	2
174.	Indexes whose search key specifies an order that is different from the sequential order of the file are called _____ index.	1. Primary 2. Secondary 3. Non key 4. None	2
175.	Which of the following is true for timestamp ordering?	1. Basic timestamp ordering does not ensure conflict serializability 2. Strict timestamp ordering ensures freedom from deadlock 3. Thomas' write rule enforces conflict serializability 4. None	
176.	Cascading rollback is avoided in all protocol except	1. Strict two-phase locking protocol 2. Tree locking protocol 3. Two-phase locking protocol 4. Validation based protocol	3
177.	If one attribute is determiant of second , which in turn is a determinant of third, then the relation cannot be	1. well structured 2. in 1 NF 3. in 2 NF 4. in 3 NF	4
178.	A 3 NF relation is split into 4 NF by	1. Removing overlapping composite keys 2. Splitting into relations which do not have more than one independent multivalued dependency 3. Removing multivalued dependency 4. By putting dependent non-key attribute in a separate table	3
179.	The FD A->B, DB->C implies	1. DA->C 2. A->C 3. B->A 4. DB->A	1
180.	R(A,B,C,D) is a relation. Which of the following does not have a lossless join dependency preserving BCNF decomposition	1. A->B, B->CD 2. A->B, B->C, C->D 3. AB->C, C->AD 4. A->BCD	3

181.	Fifth Normal form is concerned with	1. Functional dependency 2. Multivalued dependency 3. Join dependency 4. Domain-key	3
182.	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	4
183.	Using the below data: EMPNO ENAME SAL A822 RAMASWAMY 3500 A812 NARAYAN 5000 A973 UMESH A500 BALAJI 5750 Select count(sal) from Emp will retrieve	1. 1 2. 0 3. 3 4. 4	3
184.	Which of these is incorrect ?	1. Software engineering belongs to Computer science 2. Software engineering is a part of a more general form of System Engineering 3. Computer science belongs to Software engineering 4. Software engineering is concerned with the practicalities of developing and delivering useful software	3
185.	For select operation the _____ appear in the subscript and the _____ argument appears in the parenthesis after the sigma.	1. Predicates, relation 2. Relation, Predicates 3. Operation, Predicates 4. Relation, Operation	1
186.	Which one of the following models is not suitable for accommodating any change?	1. Build & Fix Model 2. Prototyping Model 3. RAD Model 4. Waterfall Model	4
187.	Using Relational Algebra the query that finds customers, who have a balance of over 1000 is	1. PCustomer_name(s balance >1000(Deposit)) 2. s Customer_name(Pbalance >1000(Deposit)) 3. PCustomer_name(s balance >1000(Borrow)) 4. s Customer_name(Pbalance >1000(Borrow))	1
188.	A B-tree of order m has maximum of _____ children	1. m 2. m+1 3. m-1 4. m+2	2
189.	Which model can be selected if user is involved in all the phases of SDLC?	1. Waterfall Model 2. Prototyping Model 3. RAD Model 4. both b & c	3
190.	Consider a schema R(A, B, C, D) and functional dependencies A ? B and C ? D. Then the decomposition R1(A, B) and R2(C, D) is	1. Dependency preserving but not lossless join 2. Dependency preserving and lossless join 3. Lossless Join but not dependency preserving 4. Lossless Join	
191.	What is a Software ?	1. Software is set of programs 2. Software is documentation and configuration of data 3. a,b 4. None of the mentioned	3
192.	Consider the join of a relation R with relation S. If R has m tuples and S has n tuples,then the maximum size of join is:	1. mn 2. m+n 3. (m+n)/2 4. 2(m+n)	1
193.	Functional requirements capture the intended behavior of the system.	1. True 2. False 3. All 4. None	1
194.	Which is one of the most important stakeholder from the following ?	1. Entry level personnel 2. Middle level stakeholder 3. Managers 4. Users of the software	4

195.	In the case of a --- the index record is created only for some search key values	1. Sparse 2. Dense 3. Primary 4. None	1
196.	Which of the following is a dynamic model that shows how the system interacts with its environment as it is used?	1. system context model 2. interaction model 3. environmental model 4. both system context and interaction	2
197.	Which of the following is not considered as a risk in project management?	1. Specification delays 2. Product competition 3. Testing 4. Staff turnover	3
198.	Which phase is not a part of the optimistic technique?	1. Execution phase 2. Read phase 3. write phase 4. Validation phase	1
199.	Interaction Diagram is a combined term for	1. Sequence Diagram + Collaboration Diagram 2. Activity Diagram + State Chart Diagram 3. Deployment Diagram + Collaboration Diagram 4. None of the mentioned	1
200.	According to ISO 9001, the causes of nonconforming product should be	1. deleted 2. eliminated 3. identified 4. eliminated and identified	4
201.	In CMM, the life cycle activities of requirements analysis, design, code, and test are described in	1. Software Product Engineering 2. Software Quality Assurance 3. Software Subcontract Management 4. Software Quality Management	1
202.	How many stages are there in process improvement?	1. 3 2. 4 3. 5 4. 6	1
203.	The documentation of a process which records the tasks, the roles and the entities used is called	1. Process metric 2. Process analysis 3. Process modeling 4. None of the mentioned	1
204.	Which of the following is a project scheduling method that can be applied to software development?	1. PERT 2. CPM 3. CMM 4. both PERT and CPM	1
205.	Identify the disadvantage of Spiral Model.	1. Doesn't work well for smaller projects 2. High amount of risk analysis 3. Strong approval and documentation control 4. Additional Functionality can be added at a later date	1
206.	What is the correct JavaScript syntax to change the content of the HTML element below? IWP demo	1. document.getElementById("demo").innerHTML="Hello!"; 2. document.getElementByClass("demo").innerHTML="Hello!"; 3. document.getElementByName("demo").innerHTML="Hello!"; 4. #demo.innerHTML="Hello!";	1
207.	How do you create a function in JavaScript?	1. function = myfunction() 2. function:myfunction() 3. function myfunction() 4. func myfunction()	3
208.	What is the correct way to write a JavaScript array?	1. var cars = ["a", "b", "c"]; 2. var cars = "a", "b", "c"; 3. var cars = ("a", "b", "c"); 4. var cars = a, b, c;	1
209.	Which event occurs when the user clicks on an HTML element?	1.onchange 2.onmouseclick 3.onclick 4. onmouseover	2
210.	How do you declare a JavaScript integer variable as "i"?	1. var i; 2. int i; 3. variable i; 4. $i;	1

211.	Consider the following code snippet : var a = [1,2,3,4,5]; x=a.slice(0,3); What is the value of x in the given code snippet ?	1. 1,2,3 2. 4,5 3. 1,2,3,4 4. 1,2,3,4,5	3
212.	What will be the output of the following Javascript code? var val1=[1,2,3]; var val2=[6,7,8]; var result=val1.concat(val2); document.writeln(result);	1. 1,2,3 2. Error 3. 1,2,3,6,7,8 4. 123	3
213.	What will be the output of the following Javascript code? var values=["1","2","3"]; var ans=values.shift(); document.writeln(ans);	1. 1 2. 2 3. 3 4. Error	1
214.	What will be the output of the following Javascript code? function info() { int a=1; int b=2; return a*b; } document.write(info());	1. 1 2. 2 3. 3 4. Error	2
215.	Which function among the following lets to register a function to be invoked once?	1. setTimeout() 2. setTotaltime() 3. setInterval() 4. settime()	1
216.	Which method receives the return value of setInterval() to cancel future invocations?	1. clearInvocation() 2. cancelInvocation() 3. clearInterval() 4. clear()	3
217.	To which object does the location property belong?	1. Window 2. Position 3.Element 4. Document	1

218.	What will be the output of the following Javascript code?
	function output(option)
	{
	return (option ? "yes" : "no");
	}
	bool ans=true;
	console.log(output(ans));
		1. yes
		2. No
		3.Run time error
		4. Compile time error
			1

219.	What will be the output of the following Javascript code? string a = "hi"; string b ="there"; alert(a+b);	1. hi 2. there 3. hithere 4. undefined	3

220.	What will be the output of the following Javascript code?
	function getcube()
	{
	var number=document.getElementById("number").value;
	alert(number*number*number);
	}
	<form>
	Enter No:<input type="text" id="number" name="number" value="3" />
	
	<input type="button" value="Cube" onclick="getcube()"/>
	</form>
		1. 9
		2. 27
		3. Error
		4. undefined
			2

221.	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()	3
222.	What will be the output of the following Javascript code? 1 2 3 function myFunction() {	1. 1 2. 2 3. 3 4. error	1

	var x = document.getElementsByTagName("P").item(0);
	alert(x.innerHTML);
	}		

223.
224.
	What will be the output of the following Javascript code?
	 1
	 2
	 3
	function myFunction()
	{
	var l = document.getElementsByTagName("P").length;
	alert(l);
	}
		1. 1
		2. 2
		3. 3
		4. error
			3

225.	Java script regular expressions has the following syntax	1. /pattern/quantifiers 2. /quantifiers/pattern 3. /modifiers/pattern 4. /pattern/modifiers	4
226.	Select the quantifiers of java script regular expression	1. i 2. g 3. m 4. n+	4
227.	In java script regular expressions ?=n means	1.Matches any string that is followed by a sp 2.Matches any string that ends with a specific string n 3.Excludes any string that is followed by a specific string n 4.Excludes any string that ends with a specific string n	2
228.	Pick a statement that matches any string that is not followed by a specific string n in java script regular expression	1. ?=n 2. ^n 3. ?!n 4. n$	3
229.	Select the quantifier of java script regular expression	1. >= 2. <= 3. * 4. /	3
230.	select the modifier of java script regular expression	1. * 2. h 3. + 4. i	4
231.	The quantifier n* represents in java script regular expression is	1. Matches any string that contains zero or more occurrences of n 2. Matches any string that contains zero or one occurrences of n 3. Matches any string that contains at least one n 4. Matches any string that contains a sequence of X n's	1
232.	The quantifier n+ represents in java script regular expression is	1. Matches any string that contains zero or more occurrences of n 2. Matches any string that contains zero or one occurrences of n 3. Matches any string that contains at least one n 4. Matches any string that contains a sequence of X n's	3
233.	The quantifier n? represents in java script regular expression is	1. Matches any string that contains zero or more occurrences of n 2. Matches any string that contains zero or one occurrences of n 3. Matches any string that contains at least one n 4. Matches any string that contains a sequence of X n's	2
234.	The quantifier n{X} represents in java script regular expression is	1. Matches any string that contains zero or more occurrences of n 2. Matches any string that contains zero or one occurrences of n 3. Matches any string that contains at least one n 4. Matches any string that contains a sequence of X n's	4
235.	The quantifier n$ represents in java script regular expression is	1. Matches any string with n at the end of it 2. Matches any string with n at the beginning of it	1

		3. Matches any string that contains at least one n 4. Matches any string that contains a sequence of X n's	
236.	The execution of java script regular expression pattern results is true or false. Which of the following function does it?	1. exec() 2. Compile () 3. Test () 4. toString ()	3
237.	The execution of java script regular expression pattern results in returning the first match. Which of the following function does it?	1. exec() 2. Compile () 3. Test () 4. match ( )	1
238.	The quantifier n^ represents in java script regular expression is	1. Matches any string with n at the end of it 2. Matches any string with n at the beginning of it 3. Matches any string that contains at least one n 4. Matches any string that contains a sequence of X n's	2
239.	The following function does the initializations before the page is loaded	1. Onchange ( ) 2. OnClick ( ) 3. OnLoad ( ) 4. Onmouseover ()	
240.	HTML patter attribute pattern="(?=.*\d)(?=.*[a-z])(?=.*[A-Z]).{8,} represents	1. Must contain at least one number and one uppercase and lowercase letter, and at least 8 or more characters 2. Must contain more number and one uppercase and lowercase letter, and at least 8 or more characters 3. Must contain more number and more uppercase and lowercase letter, and at least 8 or more characters 4. Must contain at least one number and more uppercase and lowercase letter, and at least 8 or more characters	1
241.	In AJAX the open method is always accompanied with _____ method	1. create () 2. send () 3. close ( ) 4. abort ( )	4
242.	The jquery $("p:first") statement does	1. Selects all the elements 2. Selects the first element 3. Selects the last element 4. Selects the middle element	2
243.	How can we set a constant in PHP	1. define(name, value); 2. constant(name, value); 3. none 4. #define(name, value);	1
244.	The following piece of script will output $n1=011; $n2=9; $n=$n1+$n2; print($n);	1. 020 2. 20 3. 18 4. none	3
245.	Which of following function return 1 when output is successful	1. echo 2. print( ) 3. both echo and print() 4. None	2
246.	Which of the following method is suitable when you need to send larger data of form submissions_____	1. Get 2. Post 3. Both Get and Post 4. there is no direct way for larger form. You need to store them in a file and retrieve	2
247.	Which of the following php function returns the number of elements in an array	1. count($array_name) 2. sizeof($array_name) 3. length($array_name) 4. both count($array_name) and sizeof($array_name)	4
248.	Which of the following variables is not a global variable in php	1. $_get 2. $_ask 3. $_request 4. $_post	2
249.		1. a is false 2. $a is true 3. $a is overflow 4. the statement is not valid	

250.	The output of the following script would be
	$GVAR=0;
	function INCRIT() {
	GLOBAL $GVAR;
	$GVAR++;
	$GVAR--;
	$GVAR++;
	echo "GVAR is $GVAR";
	}
	INCRIT();
		1. GVAR is 15
		2. GVAR is 16
		3. GVAR is 1
		4. GVAR is $GVAR.
			3

251.	If the variable $a is equal to 5 and variable $b is equal to "a", what's the value of $$b?	1. $5 2. 5 3. $100 4. $a	2
252.	Which of the functions is used to sort an array in descending order?	1. sort() 2. asort() 3. rsort() 4. dsort()	3
253.	Which in-built function will add a value to the end of an array?	1. array_unshift() 2. into_array() 3. array_push() 4. array_shift()	3
254.	What will be the output of the following PHP code? <?php $state = array ("Karnataka", "Goa", "Tamil Nadu", "Andhra Pradesh"); echo (array_search ("Tamil Nadu", $state)); ?>	1. True 2. 1 3. False 4. 2	2
255.	Which statement will output $x on the screen?	1. echo "\$x"; 2. echo "$$x"; 3. echo "/$x"; 4. echo "$x";	4
256.	What will be the output of the following PHP code ? < ?php int $one = 1; echo "$one"; ?>	1. 0 2. 1 3. $one 4. error	4
257.	What will be the output of the following PHP code ? <?php $a = 12; --$a; echo $a++; ?>	1. 11 2. 10 3. 12 4. error	1

258.	What will be printed?
	$a = array();
	if ($a[0])
	echo "null";
	echo count($a);
		1. 0
		2. 1
		3. 2
		4. error
			4

259.	What will be the output of the following PHP code?
	<?php
	function a()
	{
	function b()
	{
	echo 'I am b';
	}
	echo 'I am a';
	}
	b();
	a();
	?>
		1. I am b
		2. I am bI am a
		3. Error
		4. I am a
			3

260.	What is x+ mode in fopen() used for?	1. Read/Write. Creates a new file. Returns FALSE and an error if file already exists 2. Write only. Creates a new file. Returns TRUE and an error if file already exists 3. Read/Write. Opens and clears the contents of file 4. Write. Opens and clears the contents of file	1
261.	What is the output of PHP code <?php $rest = substr("abcdef", -1); echo $rest.","; $rest = substr("abcdef", 0, -1); echo $rest; ?>	1. a,fedcb 2. f,abcde 3. b,abcdef 4. a,abcde	2
262.	Which of the following attribute is needed for file upload via form?	1. enctype='text/plain' 2. enctype='singlepart/data' 3. enctype='multipart/form-data' 4. enctype='form-data/file'	3
263.	You need to check the size of a file in PHP function. $size = X(filename); Which function will suitably replace 'X'?	1. filesize 2. size 3. sizeofFile 4. getSize	1
264.	What is the output of PHP code <?php echo "Today is " . date("3"); . " "; ?>	1. Today is Tuesday 2. Today is 3 3. Today is 3rd day 4. Error	2
265.	Which one of the following function will print current time in 24 hours format with minutes and seconds	1. date("h"); 2. date("h:I:S"); 3. date("H"); 4. date("H:i:s");	4
266.	Which of the following function which is used to set default time zone in PHP	1. default_timezone_set() 2. default_date_timezone_set() 3. date_default_timezone_set() 4. set_default_timezone()	3
267.	Which is a valid strtotime() function in PHP	1. strtotime("tomorrow"); 2. strtotime("next Saturday"); 3. All of them 4. strtotime("+3 Months");	3
268.	What is the output of PHP code<?php //Assume today is september 6th 2019 $d1=strtotime("December 04"); $d2=ceil(($d1-time())/60/60/24); echo $d2; ?>	1. 89 2. 90 3. 88 4. error	1
269.	How to read a entire file in one line PHP script	1. Using readfile() 2. Using both readfile and get_file_contents() 3. Using read_file() 4. Using get_file_contents()	4
270.	Totally how many arguments are mandatory for mail() function	1. 1 2. 2 3. 3 4. 4	3
271.	Which of the following is not a valid file mode in PHP	1. r 2. w 3. x+ 4. y+	4
272.	Which function is used, for seeing last time modification of a file	1. filemtime() 2. fileinode() 3. lchgrp() 4. lchown()	1
273.	Which of the following statements is false regarding the opening modes of a file?	1. When you open a file for reading, if the file does not exist, an error occurs. 2. When you open a file for writing, if the file does not exist, a new file is created. 3. When you open a file for reading, if the file does not exist, the program will open an empty file.	3

		4. When you open a file for writing, if the file exists, the existing file is overwritten with the new file.	
274.	What will be the output of the following PHP code <?php echo str_pad("O", 5,"O")." My God."; ?>	1. OOOOO My God 2. OOOO My God 3. Error 4. Warning	1
275.	Which statement can be used for modifying the definition of an existing table?	1. Alter 2. Modify 3. Select 4. Update	2
276.	What is the default number of seconds that cached session pages are made available before the new pages are created?	1. 360 2. 180 3. 3600 4. 1800	2
277.	Which one of the following methods can be used to diagnose and display information about a MySQL connection error?	1. connects_errno() 2. connects_error() 3. mysqli_connect_errno() 4. mysqli_connects_error()	3
278.	mysql_connect( ) does not take following parameter	1. database host 2. user ID 3. password 4. database names	4
279.	Which one of the following methods is responsible for sending the query to the database?	1. mysqliquery() 2. send_query() 3. sendquery() 4. mysqli_query()	4
280.	A function that takes no arguments and return a string, which is unique key corresponding to a particular session	1. session_name( ) 2. session_params( ) 3. session_id( ) 4. id( )	3
281.	If the directive session.cookie_lifetime is set to 3600, the cookie will live until _____	1. 3600 sec 2. 3600 min 3. 3600 hrs 4. the browser is restarted	1
282.	_____ address is an internetwork address with universal jurisdiction.	1. Physical 2. Logical 3. MAC Address 4. IC Address	2
283.	In _____, a table associating a logical address with a physical address is updated manually	1. static mapping 2. dynamic mapping 3. physical mapping 4. Social mapping	2
284.	The target hardware address on an Ethernet is _____ in an ARP request	1. 0x000000000000 2. 0.0.0.0 3. variable 4. class dependent	3
285.	An ARP request is normally _____	1. broadcast 2. unicast 3. multicast 4. semi multicast	2
286.	The ARP component that sends an IP packet to a queue is the _____.	1. cache controller 2. input module 3. output module 4. Processor Module	3
287.	TCP assigns a sequence number to each segment that is being sent. The sequence number for each segment is the number of the _____ byte carried in that segment.	1.first 2. last 3. middle 4. between	1
288.	A TCP segment is encapsulated in _____.	1. an IP datagram 2. an Ethernet frame 3. a UDP user datagram 4. Token ring Frame	1

289.	Which of the following functions does UDP perform?	1. Process-to-process communication 2. Host-to-host communication 3. End-to-end reliable data delivery 4. Interface-to-interface communication.	1
290.	UDP packets have fixed-size header of ..... bytes.	1. 16 2. 8 3. 32 4. 64	2
291.	The address resolution protocol (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	4
292.	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. The packet source cannot set route of an outgoing packets;the route is determined only by the routing tables in the routers on the way 4. IP ensures that a packet is discarded if it is unable to reach its destination within a given number of hops	3
293.	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	2
294.	In class C , if subnet mask is 255.255.255.224 then calculates number of subnet?	1. 6 2. 8 3. 4 4. 12	2
295.	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	3
296.	Which of the following system calls results in the sending of SYN packets?	1. Bind 2. Listen 3. socket 4. Connect	4
297.	What is the value of opad in the HMAC structure?	1. 0111110 2. 00110010 3. 10110110 4. 01011100	2
298.	When a hash function is used to provide message authentication, the hash function value is referred to as	1. Message Field 2. Message Digest 3. Message Score 4. Message Leap	2
299.	What is a one-way password file?	1. A scheme in which the password is jumbled and stored 2. A scheme in which the password is XOR with a key and stored 3. A scheme in which the hash of the password is stored 4. A scheme in which the password is passed through a PRF, which is then stored	3
300.	Which one of the following is not an application hash functions?	1.One-way password file 2.Key wrapping 3.virus Detection 4.Intrusion detection	2
301.	For a 150-bit message and a 10-bit MAC, how many values are the MAC value dependent on?	1.2^140 2.2^150 3.2^15 4.2^10	1
302.	For a 100 bit key and a 32 bit tag, how many possible keys can be produced in the 3rd round?	1.2^4 2.2^8	1

		3.2^16 4.2^32	
303.	In SHA-512, W16 is dependent on	1.W0,W3,W7,W13 2.W3,W7,W11,W15 3.W0,W1,W9,W14 4.W0,W1,W10,W13	3
304.	PGP makes use of which cryptographic algorithm?	1.DSA 2.AES 3.ECC 4.RSA	4
305.	Which of these systems use timestamps as an expiration date?	1.Public-Key Certificates 2.Public announcements 3.Publicly available directories 4.Public-Key authority	1
306.	Which system uses a trusted third party interface?	1.Public-Key Certificates 2.Public announcements 3.Publicly available directories 4.Public-Key authority	1
307.	Cryptographic hash functions execute faster in software than block ciphers.	1. Statement is correct 2. Statement is incorrect 3. Depends on the hash function 4. Depends on the processor	4
308.	Which mode of operation is used in the DAA (Data Authentication Algorithm)?	1. output feedback mode 2. electronic code block mode 3. cipher block chaining mode 4. cipher feedback mode	3
309.	hat is the value of ipad in the HMAC structure?	1. 00111110 2. 00110010 3. 10110110 4. 01110110	2
310.	Another name for Message authentication codes is	1. cryptographic codebreak 2. cryptographic codesum 3. cryptographic checksum 4. cryptographic checkbreak	3
311.	In CMAC (cipher based MAC), which scenario is a different key K2 is used instead of K1?	1. If the tag is larger than the key length 2. If the tag is shorter than the key length 3. In the last step of the algorithm 4. If the plaintext/message is not an integer multiple of the cipher clock length	4
312.	Which of the following is true about Public Key Infrastructure?	1. PKI is a combination of digital certificates, public-key cryptography, and certificate authorities that provide enterprise wide security. 2. PKI uses private and public keys but does not use digital certificates. 3. PKI uses two-way symmetric key encryption with digital certificates, and Certificate Authority. 4.PKI uses CHAP authentication.	1
313.	Which of the following describes APIs for devices such as smartcards that contain other cryptographic information?	1. PKCS #1 2. PKCS #5	4

		3. PKCS #7 4. PKCS #11	
314.	For a 100 bit key and a 32 bit tag, how many possible keys can be produced in the 3rd round?	1. 2^4 2. 2^32 3. 2^16 4. 2^64	1
315.	In asymmetric key cryptography, the private key is kept by	1. sender 2. receiver 3. sender and receiver 4. all the connected devices to the network	2
316.	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	2
317.	Voice privacy in GSM cellular telephone protocol is provided by	1. A5/2 cipher 2. b5/4 cipher 3. b5/6 cipher 4. b5/8 cipher	1
318.	Divide (HAPPY)26 by (SAD)26. We get quotient –	1. KD 2. LD 3. JC 4. MC	1
319.	The time required to convert a k-bit integer to its representation in the base 10 in terms of big-O notation is	1. O(log2 n) 2. O(log n) 3. O(log2 2n) 4. O(2log n)	1
320.	The estimated computations required to crack a password of 6 characters from the 26 letter alphabet is-	1. 308915776 2. 11881376 3. 456976 4. 8031810176	1
321.	Caesar Cipher is an example of	1. Poly-alphabetic Cipher 2. Mono-alphabetic Cipher 3. Multi-alphabetic Cipher 4. Bi-alphabetic Cipher	2
322.	DES follows	1. Hash Algorithm 2. Caesars Cipher 3. Feistel Cipher Structure 4. SP Networks	3
323.	The DES Algorithm Cipher System consists of _____rounds (iterations) each with a round key	1. 4 2. 8 3. 16 4. 24	3
324.	The DES algorithm has a key length of	1. 32 2. 128 3.64 4. 256	3
325.	The Initial Permutation table/matrix in DES is of size	1. 8x8 2. 16x16 3. 32 x32 4. 64 x64	1
326.	In the DES algorithm the Round Input is 32 bits, which is expanded to 48 bits via	1. Scaling of the existing bits 2. Duplication of the existing bits 3. Addition of zeros 4. Addition of ones	1
327.	The main disadvantages of packet-filtering Router:	1. Simplicity 2. Transparency to users 3. Lack of Authentication 4. Durability	3

328.	What is the number of operation required to come up with 2 messages having the same message digest in SHA-512?	1. 2256 2. 2152 3. 21024 4. 2128	1
329.	The second pre-image resistant property is	1. It is computationally infeasible to find any pair (x, y) such that H(x) = H(y) 2. For any given block x, it is computationally infeasible to find y not equal to x, with H(y) = H(x) 3. For any given hash value h it is computationally infeasible to find y such that H(y) = h 4. H(x,y) = H(y,x)	2
330.	Suppose that everyone in a group of N people wants to communicate secretly with the 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	3
331.	Anarkali digitally signs a message and sends it to Salim. Verification of the signature by Salim requires	1. Anarkali's public key. 2. Salim's public key. 3. Salim's private key. 4. Anarkali's private key.	1
332.	Exponentiation is a heavily used operation in public key cryptography. Which of the following options is the tightest upper bound on the number of multiplications required to compute bn mod m,0≤b,n≤m ?	1. O(logn) 2. O(√ n) 3. O(n/logn) 4. O(n)	1
333.	If there are N people in the world and are using secret key encryption/decryption for privacy purpose, then number of secret keys required will be:	1. N 2. (N – 1) 3. N (N – 1) / 2 4. N (N + 1) / 2	3
334.	An attacker sits between customer and Banker, and captures the information from thecustomer and retransmits to the banker by altering the information. This attack is called as _____.	1. Masquerade Attack 2. Replay Attack 3. Passive Attack 4. Denial of Service Attack	2
335.	In Challenge-Response authentication the claimant _____.	1. Proves that she knows the secret without revealing it 2. Proves that she doesn't know the secret 3. Reveals the secret 4. Gives a challenge	1
336.	Which of the following encryption algorithms is based on the Fiestal struture?	1. Advanced Encryption Standard 2. RSA public key cryptographic algorithm 3. Data Encryption Standard 4. RC4	3
337.	The standard for certificates used on internet is	1. X.25 2. X.301 3. X.409 4. X.509	4
338.	How many distinct stages are there in DES algorithm, which is parameterized by a 56-bit key?	1. 16 2. 17 3. 18 4. 19	4
339.	Consider that B wants to send a message m that is digitally signed to A. Let the pair of private and public keys for A and B be denoted represent the operation of encrypting m with a key Kx and H(m) represent the message digest. Which one of the following indicates the CORRECT way of sending the message m along with the digital signature to A?	1. A 2. B 3. C 4. D	2

340.	The total number of keys required for a set of n individuals to be able to communicate with each other using secret key and public key crypto-systems, respectively are:	1. n(n-1) and 2n 2. 2n and ((n(n – 1))/2) 3. ((n(n – 1))/2) and 2n 4. ((n(n – 1))/2) and n	3
341.	SHA-1 produces a hash value of	1. 256 bits 2. 160 bits 3. 180 bits 4. 128 bits	1
342.	What is the number of round computation steps in the SHA-256 algorithm?	1. 64 2. 80 3. 128 4. 256	1
343.	In SHA-512, the message is divided into blocks of size ___ bits for the hash computation.	1. 1024 2. 512 3. 256 4. 1248	1
344.	In SHA-3, for a message digest size of 256, what is the bitrate 'r' (capacity = 512) ?	1. 576 2. 1088 3. 1152 4. 832	2
345.	What is the effectiveness of an n-bit hash value?	1. 2n 2. 2-n 3. 22n 4. 2-2n	2
346.	MD5 produces __ bits hash data	1. 128 2. 160 3. 64 4. 256	4
347.	In MD5, the process block divides the 512 bits into _____ sub blocks.	1. 16 2. 32 3. 48 4. 64	1
348.	The RSA signature uses which hash algorithm?	1. MD5 2. SHA1 3. SHA2 4. MD5 and SHA-1	1
349.	The digital signature standard uses which hash algorithm?	1. MD5 2. SHA1 3. SHA2 4. RC4	2
350.	Which one of the following message digest algorithms is considered flawed and should no longer be used?	1. SHA-1 2. MD2 3. MD4 4. MD5	4
351.	Which one of the following message digest algorithms is the current U.S. government standard in use by secure federal information processing systems?	1. SHA-1 2. MD2 3. MD4 4. MD5	1
352.	Hashed message is signed by a sender using	1. his public key 2. his private key 3. receiver's public key 4. receiver's private key	2
353.	The responsibility of a certification authority for digital signature is to authenticate the	1. hash function used 2. private keys of subscribers 3. public keys of subscribers 4. key used in DES	3
354.	A hashing function for digital signature (i) must give a hashed message which is shorter than the original message (ii)must be hardware implementable (iii) two different messages should not give the same hashed message	1. i and ii 2. ii and iii 3. i and iii 4. iii and iv	3

	(iv) is not essential for implementing digital signature		
355.	Which one of the following is not a public key distribution means?	1. Public-Key Certificates 2. Hashing Certificates 3. Publicly available directories 4. Public-Key authority	2
356.	Hash value encrypted by the sender's private key is _____	1. AES 2. digital signature 3. DES 4. 3DES algorithm	2
357.	The standard used in digital signatures and defines its structure , fields, and values is	1. X.509 2. Kerberos 3.Cryptography 4. PKI	1
358.	A hash function guarantees integrity of a message. It guarantees that message has not be	1. Replaced 2. Over view 3.Changed 4. Violated	3
359.	Which Authentication Encryption approach is taken by the SSL/TLS protocol?	1. Hashing followed by encryption (H→E) 2. Encryption followed by authentication (E→A) 3. Authentication followed by encryption (A→E) 4. Independently encrypt and authenticate (E + A)	3
360.	Kerberos is an authentication scheme that can be used for	1. Public key cryptography 2. Digital signature 3. Hash function 4. Single sign on	2
361.	The _____ mode of IPsec, take the whole IP packet to form secure communication between two gateways	1. Transport 2. Tunnel 3. Either (a) or (b) 4. Both (a) and (b)	2
362.	IPsec services are available in _____ Layer.	1. Application 2. Data link 3. Network 4. Transport	3
363.	Encapsulating Security Payload (ESP) belongs to which Internet Security Protocol?	1. Secure Socket Layer Protocol 2. Secure IP Protocol 3. Secure Http Protocol 4. Transport Layer Security Protocol	2
364.	Total no. of messages used in SSL Handshake Protocol is	1. 12 2. 10 3. 8 4. 14	1
365.	X.509 certificate recommends which cryptographic algorithm?	1. RSA 2. DES 3. AES 4. Rabin	1
366.	Name the network attack that floods it with useless traffic.	1. Spoofing 2. Trojan Horse 3. Denial of Service attack 4. Virus	3
367.	Let us assume that a point P=(4,2) lies on the Elliptic Curve y2 = x3 + x + 1, over Z13, find the inverse of point P (-P),	1. (4, 1) 2. (4, 11) 3. (11, 4) 4. (1, 4)	2
368.	Let us assume that points P = (4, 2) and Q = (10, 6) lies on the Elliptic Curve y2 = x3 + x + 1, over Z13, find the slope value λ =(((y_2-y_1))/((x_2-x_1)))mod p for the given points	1. 7 2. 4 3. 13 4. 5	
369.	If the points P=Q then the slope value λ for the P and Q is computed,	1. λ =(((y_2-y_1))/((x_2-x_1))) 2. λ =(((3x_1^2+a))/((〖2y〗 _1))) 3. λ =(((x_2-x_1))/((y_2-y_1)))	2

		4. λ =(((3y_1^2+a))/((〖2x〗 _1)))	
370.	What is the general equation for elliptic curve systems?	1. y^3+b_1 xy+b_2 y=3x^3+a_1 x^2+a_2 x+a_3 2. y^2+b_1 x+b_2 y=x^2+a_1 x^2+a_2 3. y^2+b_1 xy+b_2 y=x^3+a_1 x^2+a_2 x+a_3 4. y^2+b_1 xy+b_2 y=x^3+a_1 x^2+a_2 x+a_3	3 {3=4}
371.	For a 150-bit message and a 10-bit MAC, how many values are the MAC value dependent on?	1. 2150 2. 2140 3.150 4. 140	2
372.	For an n-bit tag and a k-bit key, the level of effort required for brute force attack on a MAC algorithm is	1. 2k 2. 2n 3. min(2k,2n) 4. 2k/2n	3
373.	In Digital Signature, there is _____ relationship between signature and message.	1. Many to one 2. One to many 3. Many to many 4. One to One	2
374.	Differential Cryptanalysis can be mounted on	1. DES encryption algorithm 2. AES encryption algorithm 3. RSA encryption algorithm 4. Deffie-Hellman key exchange algorithm	1
375.	If an efficient algorithm for factoring large number is discovered which of this following schemes will be known to be not secure?	1. AES 2. Diffle-Hellman 3. RSA 4. EI Gammal	3
376.	Suppose that two parties A and B wish to setup a common secret key (D-H key) between themselves using the Diffie-Hellman key exchange technique. They agree on 7 as the modulus and 3 as the primitive root. Party A chooses 2 and party B chooses 5 as their respective secrets. Their D-H key is	1. 3 2. 4 3. 5 4. 6	2
377.	Alice and Bob agree to use the prime p = 941 and the primitive root g = 627. Alice chooses the secret key a = 347 and computes, A ≡ 627347 (mod 941)=X. Similarly, Bob chooses the secret key b = 781 and computes B ≡ 627781 (mod 941)=Y. Alice sends Bob the number X and Bob sends Alice the number Y. Both of these transmissions are done over an insecure channel, so both (X, Y) should be considered public knowledge. Then Alice and Bob are both able to compute the Secret Key value SK=X781.347=Y347.781(mod 941), then what is the value of (X, Y, SK)	1. (390, 691, 470) 2. (351, 655, 357) 3. (378, 648, 397) 4. (389, 657, 465)	1
378.	In the Phase 2 of the Handshake Protocol Action, the step server_key_exchange is not required for which of the following cipher systems?	1. Fortezza 2. Anonymous Diffie-Hellman 3. Fixed Diffie-Hellman 4. RSA	3
379.	The DSS signature scheme uses, which of the Hash Algorithm	1. MD5 2. SHA-2 3. SHA-1 4. DSS does not use Hash Algorithms	3
380.	Which of the following are the possible size of MAC's I. 12 Bytes, II. 16 Bytes, III. 20 Bytes IV. 24 Bytes	1. I and III 2. II only 3. I and II 4. II, III and IV	(MAC-16 &20 bits)
381.	If a 2,048-bit plaintext message was encrypted with the El-Gamal public key cryptosystem, how long would the resulting cipher text message be?	1. 1,024 bits 2. 2,048 bits 3. 4,096 bits 4. 8,192 bits	3

382.	Acme Widgets currently uses a 1,024-bit RSA encryption standard companywide. The company plans to convert from RSA to an elliptic curve cryptosystem. If it wishes to maintain the same cryptographic strength, what ECC key length should it use?	1. 160 bits 2. 512 bits 3. 1,024 bits 4. 2,048 bits	1
383.	John would like to produce a message digest of a 2,048-byte message he plans to send to Mary. If he uses the SHA-1 hashing algorithm, what size will the message digest for this particular message be?	1. 128 bits 2. 512 bits 3. 1,024 bits 4. 160 bits	4
384.	Which of the following attempts to detect attacks based on known signatures or patterns?	1. Signature based IDSs. 2. Anomaly based IDSs. 3. Host based IDSs. 4. Network based IDSs.	1
385.	Misuse signature Detection is used for _____	1. Identifying the patterns of unauthorized behaviour to predict and detect subsequent similar attempts 2. Identifying the activities of unauthorized behaviour to prevent 3. Network Firewall design with behaviour analysis 4. Network monitoring and Traffic Pattern Analysis	1
386.	What is an advantage of RSA over DSS?	1. It can provide digital signature and encryption functionality 2. It uses fewer resources and encrypts as fast as possible 3. It is a block cipher versus a stream cipher scheme 4. It employs a one-time key generation phase	2
387.	For digital signature generation needs :	1. Public key system 2. Private key system 3. Public and private key system 4. Hash algorithms	3