

**SUB: COMPUTER ENGINEERING (CO)****Time:1 Hour 30 minutes****Instructions:**

1. Ensure that all pages are printed.
2. Use Black ball pen only
3. Change in option is not allowed
4. There is no negative marking
5. Use of non-programmable scientific calculator is allowed

1.	Operating systems must evolve over time because			
	A	Users will only purchase software that has a current copyright date	B	New hardware is designed and implemented in the computer
	C	Hardware must be replaced when it fails	D	All of the above
2.	Multiprogramming increases processor efficiency in uniprocessor system by			
	A	Taking advantage of time wasted by long wait interrupt handling	B	Disabling all interrupts except those of highest priority
	C	Eliminating all idle processor cycles	D	None of the above
3.	A computer program is a passive collection of instructions, while a process is			
	A	A data structure technique	B	A data analysis technique
	C	A procedure	D	An actual execution of those instructions
4.	The LRU algorithm			
	A	pages out pages that have been used recently	B	pages out pages on first in first out manner
	C	pages out pages that have been least used recently	D	None of the above
5.	Fork is			
	A	increasing the priority of a task	B	the creation of a new process
	C	the dispatching of a task	D	Restarting an running process
6.	What is the effect of setting the too short quantum in round robin scheduling?			
	A	Too many sleeps	B	too many process switches
	C	increases CPU efficiency	D	None of the above
7.	Which of the following uses CPU most of time for computations?			
	A	I/O bound processes	B	Process that creates threads
	C	CPU bound processes	D	All of the above
8.	The unix command to stop a process is			
	A	Stop	B	shutdown
	C	Terminate	D	kill
9.	Which of the following Linux command gives full listing of all the process except kernel processes?			
	A	ps -f	B	ps -A
	C	ps -ef	D	ps -Kf
10.	System administrator uses 'cron' in linux/unix mainly to			
	A	To remove outdated files	B	Periodically taking backup
	C	Collect data on system performance	D	All of the above
11.	Which of the following scheduling policy does not lead to starvation?			

	A	SPN	B	Feedback
	C	SRT	D	HRRN
12.	Which is the paramount objective for OS Design for I/O?			
	A	Efficiency and priority	B	Performance
	C	Generality and Efficiency	D	Buffering
13.	Which of the following is correct for radio button in HTML ?			
	A	<radio>	B	<input type="radio" />
	C	<input type="radio-button" />	D	None of the above
14.	In CSS box model, padding means extra space			
	A	Between content and border	B	Between two elements
	C	Depends on its definition	D	None of the above
15.	DTD and schema in XML are used to check			
	A	Order of the elements	B	Structure of XML document
	C	Both A and B	D	None of the above
16.	Which of the following is not true regarding cookies?			
	A	It's life is fixed	B	Small text stored at client side
	C	Always available for entire domain	D	All of the above
17.	Which of the following PHP array works on principle of key-value pair?			
	A	Numerical arrays	B	Associative arrays
	C	Both of the above	D	None of the above
18.	The floating point numbers are stored using			
	A	Sign-Magnitude format	B	Scientific format
	C	Sign-Exponent-Mantissa Format	D	Any of the above
19.	How many flip-flops are required to get divide by 64?			
	A	4	B	5
	C	6	D	7
20.	Assuming all numbers are in 2's complement representation, which of the following number is divisible by 1111011 ?			
	A	11100111	B	11100100
	C	11010111	D	11011011
21.	A boolean function $x'y' + xy + x'y$ is equivalent to			
	A	$x'y'$	B	$x+y$
	C	$x+y'$	D	$x'+y$
22.	How many 32K x 1 RAM chips are needed to provide a memory capacity of 256K-bytes ?			
	A	8	B	32
	C	64	D	128
23.	The most relevant addressing mode to write position independent code is			
	A	Direct mode	B	Indirect mode
	C	Relative mode	D	Indexed mode
24.	In a vector interrupt the			
	A	interrupting source supplies the branch information to the processor through interrupt vector	B	branch address is assigned to a fixed location in memory
	C	branch address is obtained from register in the processor	D	None of the above
25.	If Fetch-Decode-Execute phases are overlapped to speed up the overall execution, it is called ....			

	A	Vector processing	B	Parallel Execution
	C	Parallel processing	D	Pipelining
26.	In “mov ax, 5” is _____ addressing Mode			
	A	Immediate	B	Indirect
	C	Direct	D	Register
27.	UART stands for			
	A	Universal asynchronization receiver/transmitter	B	Universal asynchronous receiver/transmitter
	C	United asynchronous receiver/transmitter	D	Universal automatic receiver/transmitter
28.	For a database relation R(a,b,c,d), where domains of a,b,c,b include only atomic values, only the following functional dependencies and those that can be inferred from them hold: a->c b->d The relation is			
	A	In 1NF but not in 2NF	B	In 2NF but not in 3NF
	C	In 3NF	D	None of the above
29.	Which of the following is true ?			
	A	Every relation in 3NF is also in BCNF	B	A relation is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R.
	C	Every relation in BCNF is also in 3NF	D	No relation can be in both BCNF and 3NF
30.	Consider a B <sup>+</sup> -tree in which the maximum number of keys in a node is 5. What is the minimum number of keys in any non-root node ?			
	A	1	B	2
	C	3	D	4
31.	The command to remove rows from a table 'CUSTOMER' is:			
	A	REMOVE FROM CUSTOMER ...	B	DROP FROM CUSTOMER ...
	C	UPDATE FROM CUSTOMER ...	D	DELETE FROM CUSTOMER ...
32.	Which normal form is considered adequate for normal relational database design?			
	A	2NF	B	3NF
	C	4NF	D	5NF
33.	Which of the following is not a property of a transaction?			
	A	Atomicity	B	Consistency
	C	Inconsistency	D	Durability
34.	Precompiled queries are faster in RDBMS as			
	A	They are compiled once only	B	Database engines gives them priority
	C	They are stored in special memory	D	All of the above
35.	Which type of entity cannot exist in the database unless another type of entity also exists in the database, but does not require that the identifier of that other entity be included as part of its own identifier?			
	A	Weak Entity	B	Strong Entity
	C	ID-dependent Entity	D	None of the above
36.	COCOMO (Constructive Cost Model) is used to estimate			

	A	Effort and duration based on the size of the software	B	Size and duration based on the effort of the software
	C	Effort and cost based on the duration of the software	D	Size, effort and duration based on the cost of the software
37.	In Spiral model of the software development, the primary determinant in selecting activities in each iteration is			
	A	Iteration size	B	Risk
	C	Cost	D	All of the above
38.	Which of the following is not desired in a good SRS document?			
	A	Functional requirement	B	Non functional requirement
	C	Algorithm and software implementation	D	All are included in good SRS
39.	The major drawback of RAD model is			
	A	It requires highly skilled developers/designers	B	It necessitates customer feedbacks
	C	It increases the component reusability	D	Both A and C
40.	The agile software development model is built based on			
	A	Incremental Development	B	Iterative Development
	C	Both A and B	D	None of the above
41.	The _____ model helps in representing the system's dynamic behavior			
	A	Object Model	B	Behavioral Model
	C	Data Model	D	All of the above
42.	Which of the following is an incorrect activity for the configuration management of a software system?			
	A	Internship management	B	Version management
	C	Change management	D	All of the above
43.	Which sublayer of the data link layer performs data link functions that depend upon the type of medium?			
	A	Error control sublayer	B	Network interface control sublayer
	C	Logical link control sublayer	D	Media access control sublayer
44.	Which of the following principle is used by packet switching?			
	A	Stop and wait	B	Store and forward
	C	Store and wait	D	Stop and forward
45.	Which of the following is not task of Data Link Layer?			
	A	Channel coding	B	Framing
	C	Error control	D	Flow control
46.	The ARP (Address Resolution Protocol) is used for			
	A	Finding IP Address from the DNS	B	Finding IP Address of the default gateway
	C	Finding IP Address from the MAC address	D	Finding the MAC address that corresponds to an IP address
47.	An organization has a class B network and wishes to form subnets for 64 departments. The subnet mask would be			
	A	255.255.64.0	B	255.255.128.0
	C	255.255.252.0	D	None of the above
48.	In the slow start phase of the TCP congestion control algorithm, the size of the congestion window			

	A	Does not increase	B	Increases exponentially
	C	Increases quadratically	D	Increases linearly
49.	Which of the following uses UDP as transport protocol?			
	A	SMTP	B	Telnet
	C	DNS	D	All of the above
50.	PDU (Protocol Data Unit) for application layer in the Internet stack is			
	A	Frame	B	Datagram
	C	Segment	D	Message
51.	When are 2 finite states equivalent?			
	A	Same number of transitions	B	Same number of states
	C	Same number of states as well as transitions	D	None of the above
52.	The regular expression denotes a language comprising all possible strings of even length over the alphabet (0, 1).			
	A	$1 + 0(1+0)^*$	B	$(0+1)(1+0)^*$
	C	$(1+0)$	D	$(00+0111+10)^*$
53.	Merge sort uses which of the following technique to implement sorting?			
	A	greedy algorithm	B	divide and conquer
	C	backtracking	D	dynamic programming
54.	Which of the following statements is true?			
	A	SLR parser is more powerful than LALR	B	LALR parser is more powerful than canonical LR parser
	C	Canonical LR parser is more powerful than LALR parser	D	Parsers SLR, LALR and canonical LALR have same power
55.	The number of tokens in the following C statement <code>printf("i=%d, &amp;i=%x",i,&amp;i);</code>			
	A	3	B	10
	C	15	D	21
56.	Consider a program P that consists of two source modules M1 and M2 contained in two different files. If M1 contains a reference to a function defined in M2, the reference will be resolved at			
	A	Edit time	B	Compile time
	C	Link time	D	Load time
57.	Let L denotes the language generated by the grammar $S \rightarrow 0S0/00$ . Which of the following is true ?			
	A	$L = 0^+$	B	L is regular but not $0^+$
	C	L is context free but not regular	D	L is not context free
58.	Which of the following is true ?			
	A	Every subset of a regular set is regular	B	Every finite subset of a non-regular set is regular
	C	The union of two non-regular sets is not regular	D	Infinite union of finite sets is regular
59.	The string is ended with ..... character in C programming.			
	A	'\$'	B	'?'
	C	'#'	D	'\0'

60.	Let x be an integer which can take a value of 0 or 1. The statement if(x == 0) x = 1; else x = 0; is equivalent to which one of the following?		
	A	x = 1 + x;	B    x = 1 - x;
	C	x = x - 1;	D    None of the above
61.	What will happen if in a C program you assign a value to an array element whose subscript exceeds the size of array?		
	A	The element will be set to 0.	B    The array size would appropriately grow.
	C	The program may crash if some important data gets overwritten.	D    The compiler would report an error.
62.	When you pass an array as an argument to a C function, what actually gets passed?		
	A	Value of elements in array	B    First element of the array
	C	Address of the last element of array	D    Base address of the array
63.	If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable?		
	A	->	B    . (dot)
	C	&	D    %
64.	Which of the following results into an error in C?		
	A	Defining a local and a global variables with same name	B    Defining a local variable inside a function with same name as function argument
	C	Defining a global variable as static	D    Defining a function argument as register
65.	Consider the following C structure. struct { int r_no; char name[20]; } s; Which of the following is true?		
	A	It does not use tag	B    It is not possible to define more variable of this structure at other place in program
	C	It defines one structure variable	D    All of the above
66.	Consider the following C statements. int y = -5; printf("%x",y); What would be the output?		
	A	FFFF	B    FFFE
	C	FFFB	D    Error
67.	Array is an example of ..... and ..... memory allocation.		
	A	Run, dynamic	B    Run, compile
	C	Compile, dynamic	D    Compile, sequential
68.	Which of the following allows insertion and deletion at either end?		
	A	Queue	B    Dqueue
	C	Stack	D    None of the above

69.	In a priority queue, two elements with same priority are processed in			
	A	FCFS manner	B	Random manner
	C	Implementation dependent	D	None of the above
70.	Which of the following determines that the binary tree has only one node?			
	A	LPRT and RPTR of root node are NULL	B	Either of the LPRT and RPTR of root node is NULL
	C	Pointer to root node is NULL	D	None of the above
71.	Heap allocation is required for the languages that			
	A	Support recursion	B	Dynamic data structures
	C	Use dynamic scope rules	D	None of the above
72.	Assume that the following are the sequence resulted using the inorder and preorder traversal of a binary tree. Inorder: 5 7 10 13 15 17 Preorder: 10 5 7 15 13 17 What is correct postorder sequence?			
	A	5 7 13 17 15 10	B	7 5 13 10 15 17
	C	7 5 13 17 15 10	D	None of the above
73.	Assume that the following are the sequence resulted using the inorder and preorder traversal of a binary tree. Inorder: 5 7 10 13 15 17 Preorder: 10 5 7 15 13 17 How many nodes are there in right subtree?			
	A	2	B	3
	C	4	D	None of the above
74.	To delete a node from a binary search tree having both the subtrees non-empty needs to			
	A	find inorder successor of the node to be deleted	B	find inorder predecessor of the node to be deleted
	C	Both A and B	D	None of the above
75.	The time factor when determining the efficiency of algorithm is measured by			
	A	Counting the kilobytes of algorithm	B	Counting the number of statements
	C	Counting microseconds	D	Counting the number of key operations
76.	Dynamic Programming Method is not suitable to solve			
	A	0/1 Knapsack Problem	B	Making Change Problem
	C	Binomial Co-efficient	D	Fractional Knapsack Problem
77.	The "Principle of Optimality" is used in			
	A	Greedy Method	B	Backtracking
	C	Dynamic Programming	D	Branch & Bound
78.	An hash table with chaining as a collision resolution technique degenerates to a			
	A	Tree	B	Linked list
	C	Queue	D	Any of the above
79.	Which of the following sorting methods would be most suitable for sorting a list which is almost sorted			
	A	Bubble Sort	B	Selection Sort
	C	Quick Sort	D	Merge Sort
80.	The goal of hashing is to produce a search that takes			
	A	$O(1)$ time	B	$O(n^2)$ time

	C	$O(\log n)$ time	D	$O(n \log n)$ time
81.	Which of following is a characteristic equation of a square matrix $A = \begin{bmatrix} 1 & 0 \\ 1 & 2 \end{bmatrix}$ ?			
	(a) $\lambda^2 - 3\lambda + 2 = 0$		(b) $\lambda^2 = 3\lambda - 2$	
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
82.	System of linear equation $x + y + z = 1$ , $2x + 2y + 2z = 2$ and $x - y + z = 0$ has			
	(a) Unique solution		(b) infinitely many solutions	
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
83.	If c, is an Eigen value of matrix A then in general which of following is correct?			
	(a) $3c + 2$ is Eigen value of $3A+2I$		(b) c is Eigen value of $A^{-1}$	
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
84.	If at $x = a$ , function $y = f(x)$ has local minima then in general which of following is correct?			
	(a) $f'(a) = 0$		(b) $f''(a) < 0$	
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
85.	If $u(x,y) = e^{xy}$ then which of following is correct			
	(a) $u_x(x,y) = e^{xy}$		(b) $u_x(x,y) = ye^{xy}$	
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
86.	$\int_0^1  x  dx = \text{_____}$			
	A	0	B	$\frac{1}{2}$
	C	1	D	None of these
87.	$\vec{r}(t) = a \cos t \hat{i} + b \sin t \hat{j} + ct \hat{k}$ is a parametric equation of elliptical helix if _____			
	A	$c = 0$ and $a = b$	B	$a = b$ and $c \neq 0$



	C	$a \neq b$ and $c \neq 0$	D	None of these
88.	What is the length of the curve $\vec{r}(t) = (\cos t)\hat{i} + (\sin t)\hat{j}$ from $t = \frac{\pi}{2}$ to $t = \pi$			
	A	$\frac{\pi}{2}$	B	$\pi$
	C	$\frac{\pi}{4}$	D	None of these
89.	In rolling of two fair die, what is probability of obtain sum of outcome numbers will be 7?			
	A	1/12	B	1/6
	C	1/9	D	None of these
90.	Generally Bisection Method is use for (a) solution of differential equation (b) calculation of definite integral			
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
91.	Which of following is Heat Equation?			
	A	$\frac{\partial u}{\partial t} = c^2 \frac{\partial^2 u}{\partial x^2}$	B	$\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$
	C	$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$	D	none of these
92.	Solution of $\frac{d^2 y}{dx^2} = -y$ is _____			
	A	$y = ae^x + be^{-x}$	B	$y = a \cos x + b \sin x$
	C	$y = (a + bx)e^x$	D	None of these
93.	Which of following is solution of $y'' + y' - 6y = 0$ (a) $e^{-3x}$ (b) $e^{-2x}$			
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
94.	Laplace transform of a function $f'(t)$ is _____			
	A	$s^2 \bar{f}(s) - sf(0) - f'(0)$	B	$\int_0^\infty e^{st} f(t) dt$
	C	$s\bar{f}(s) - f(0)$	D	None of these

95.	Which of following is correct for Laplace Transform (a) $L(\sin at) = \frac{a}{s^2 + a^2}$ (b) $L(\cos at) = \frac{s}{s^2 + a^2}$			
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
96.	Which of following is harmonic function (a) $u(x,y) = e^x \cos y$ (b) $u(x,y) = \cos y$			
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
97.	Which of following is correct (a) Sequence $u_n = \frac{n!}{n^n}$ is divergent (b) $\sum_{n=1}^{\infty} \frac{n!}{n^n}$ is divergent			
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
98.	If $f(z) = u(x,y) + iv(x,y)$ is an analytic function then which of following is correct (a) $u_y = -v_x$ (b) $u_x - v_y = 0$			
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
99.	For complex valued function $f(z) = \frac{z+i}{(z-3)(z+4)^3}$ which of following is correct (a) 4 is a singular point (b) $f(z)$ has a simple pole at $z = -4$			
	A	Only (a)	B	Only (b)
	C	Both (a) and (b)	D	None of these
100.	$\oint_C \frac{e^z}{z-4} dz = \text{_____}$ , where C is a circle $ z  = 5$ .			
	A	1	B	$2\pi e^4$
	C	$e^4$	D	None of these

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