

Sr No.	PhD CSE
1	Choose the missing term out of the given options: _a_a_b_a_b_b_a_b_a_a_b
Alt1	aaabb
Alt2	babab
Alt3	bbaab
Alt4	bbbaa

2	Choose word from the given options which bears the same relationship to the third word, as the first two bears: Hour : Second :: Tertiary : ?
Alt1	Intermediary
Alt2	Primary
Alt3	Ordinary
Alt4	Secondary

3	Select the lettered pair that has the same relationship as the original pair of words: Stickler : Insist
Alt1	Laggard : Outlast
Alt2	Braggart : Boast
Alt3	Haggler : Concede
Alt4	Trickster : Risk

4	Select the lettered pair that has the same relationship as the original pair of words: Necromancy : Ghosts
Alt1	Romance : Stories
Alt2	Magie : Amulets
Alt3	Alchemy : Gold
Alt4	Sorcery : Spirits

5	Find out the number that has the same relationship as the numbers of the given pair: MAD : JXA : RUN : ?
Alt1	ORK
Alt2	OSQ
Alt3	PRJ
Alt4	UXQ

6	Spot the defective segment from the following:
Alt1	Keep the miscreants
Alt2	at your arm's length
Alt3	for
Alt4	they will pull the wool over your eyes

7	The terrorists held the tourists ----- for ransom.
Alt1	as hostages
Alt2	hostages
Alt3	hostage

Alt4	captives
------	----------

8	If I ----- wealthy, I would have got many friends.
Alt1	had been
Alt2	were
Alt3	was
Alt4	am

9	Choose the option closest in meaning to the given word: NEOLOGISM
Alt1	inoculation
Alt2	coinage
Alt3	consistency
Alt4	mirth

10	Choose the antonymous option you consider the best: SUAVE
Alt1	crestfallen
Alt2	polite
Alt3	rough
Alt4	cherished

11	In a certain code, REFRIGERATOR is coded as ROTAREGIRFER. Which word would be coded as NOITINUMMA ?
Alt1	ANMOMIUTNI
Alt2	AMNTOMUIIN
Alt3	AMMUNITION
Alt4	NMMUNITIOA

12	Traffic : Road in the same way as
Alt1	Aeroplane : Aerodrome
Alt2	Blood : Veins
Alt3	Roots : Tree
Alt4	Car : Garage

13	The following information is given: One of M.Gopi, his wife, their son and Mr.Gopi's mother is an architect and another is a doctor. (i) If the doctor is younger than the architect, then the doctor and the architect are not blood relatives. (ii) If the doctor is a woman, then the doctor and the architect are blood relatives. (iii) If the architect is a man, then the doctor is a man. Whose occupation is known by this information?
Alt1	Mr. Gopi is the doctor
Alt2	Mr. Gopi's son is the architect
Alt3	Mrs. Gopi is the doctor
Alt4	Mr. Gopi's mother is the doctor

14	Gopal was ranked 5th from the top and 16th from the bottom in a test. How many students were there in his class
Alt1	19
Alt2	21
Alt3	22
Alt4	20

15	Median of 100, 50, -20, -10, -50, 150 is
Alt1	-20
Alt2	-10
Alt3	20
Alt4	30

16	Which of the following is 'OXYMORON'?
Alt1	Found Missing
Alt2	TIT-TAT
Alt3	GOTO
Alt4	Misunderstood

17	There are 5 persons in a class. Each one is shaking hand with the other. Find the total number of hand shakes?
Alt1	5
Alt2	10
Alt3	20
Alt4	60

18	Of the 26 Capital letters, how many are symmetrical along with vertical and horizontal axes.
Alt1	4
Alt2	3
Alt3	6
Alt4	5

19	There are 30 boys and 60 girls in a village . There are 70 men and 40 women in that village. What is the percentage of boys in that village?
Alt1	0.1
Alt2	0.25
Alt3	0.2
Alt4	0.15

20	There are N students in a class and only 8 of them are girls. If 11 boys added to the class,how many students in the class are boys?
Alt1	N+3
Alt2	N-3
Alt3	N-19

Alt4	19
21	In Propositional logic negation of $p \rightarrow q$ is equivalent to
Alt1	$p \wedge \sim q$
Alt2	$p \vee q$
Alt3	$\sim p \vee q$
Alt4	$p \wedge q$
22	An abelian group is a group in which
Alt1	Commutative Property is also satisfied
Alt2	Distributive Property is also satisfied
Alt3	Closed with respect to addition and multiplication
Alt4	It is always a ring
23	A relation R is set to be an equivalence relation if
Alt1	It is Reflexive
Alt2	It is Symmetric
Alt3	It is Transitive
Alt4	It is Reflexive, Symmetric and Transitive
24	A function is a bijection if
Alt1	It is one-one
Alt2	It is on- to
Alt3	It is one-one and on-to
Alt4	It is one-one and in-to
25	The worst case time complexity of Insertion Sort algorithm is
Alt1	$O(n)$
Alt2	$O(n \times n)$
Alt3	$O(\log n)$
Alt4	$O(n \log n)$
26	The following numbers are inserted into an empty binary search tree in the given order: 10, 1, 3, 5, 15, 12, 16. What is the height of the binary search tree (the height is the maximum distance of a leaf node from the root)?
Alt1	2
Alt2	3
Alt3	4
Alt4	6
27	A tree that uses parts of the key to navigate the search is
Alt1	B+ tree
Alt2	Binary search tree
Alt3	AVL tree
Alt4	Trie

28	What is the minimum and maximum height of a binary search tree having 20 elements? Assume that the level of the root node is 1.
Alt1	5, 19
Alt2	5, 20
Alt3	4, 19
Alt4	4, 20

29	How many linked lists are used to represent a graph with n nodes and m edges, when using an edge list representation,
Alt1	m
Alt2	n
Alt3	m + n
Alt4	m * n

30	Which of the following software testing techniques use McCabe's Cyclomatic complexity?
Alt1	Statement Coverage
Alt2	Condition Coverage
Alt3	Boundary value analysis
Alt4	Basis Path Testing

31	The process model which considers Risk Analysis is
Alt1	Waterfall model
Alt2	Spiral Model
Alt3	Rapid Application Development Model
Alt4	Prototyping Model

32	The input portion in the Data Flow Diagram that transform input data from physical to logical form is called
Alt1	Central transform
Alt2	Efferent branch
Alt3	Afferent branch
Alt4	None of the above

33	If every requirement stated in the Software Requirement Specification (SRS) has only one interpretation, SRS is said to be
Alt1	Correct
Alt2	Unambiguous
Alt3	Consistent
Alt4	Verifiable

34	Coupling and cohesion can be represented using a
Alt1	Cause-effect graph
Alt2	Dependence matrix
Alt3	Structure chart
Alt4	SRS

35	Alpha and Beta Testing are forms of
Alt1	Acceptance testing
Alt2	Integration testing
Alt3	System Testing
Alt4	Unit testing

36	Which is not a size metric?
Alt1	LOC
Alt2	Function count
Alt3	Program length
Alt4	Cyclomatic complexity

37	The idea of cache memory is based
Alt1	on the property of locality of reference
Alt2	on the heuristic 90-10 rule
Alt3	on the fact that references generally tend to cluster
Alt4	all of the above

38	A microprogram sequencer
Alt1	generates the address of next micro instruction to be executed.
Alt2	generates the control signals to execute a microinstruction.
Alt3	sequentially averages all microinstructions in the control memory.
Alt4	enables the efficient handling of a micro program subroutine

39	Which of the following protocols is used in Ethernet LANS for media access control?
Alt1	Sliding Window Protocol
Alt2	Stop and Wait Protocol
Alt3	Go Back N Protocol
Alt4	CSMA/CD Protocol

40	In the TCP/IP model, flow control and error control are carried out by
Alt1	The Application Layer
Alt2	Transport Layer
Alt3	Network Layer
Alt4	Data Link Layer

41	The length of MAC address in Ethernet is
Alt1	32 bits
Alt2	48 bits
Alt3	64 bits
Alt4	128 bits

42	Which of the following protocols is used for routing in Ad-hoc networks
Alt1	AODV
Alt2	Link State Routing
Alt3	Multicast Routing
Alt4	Distance Vector Routing

43	The protocol which is used for multicast communication
Alt1	ARP
Alt2	RARP
Alt3	IGMP
Alt4	ICMP

44	Fork is
Alt1	the dispatching of a task
Alt2	the creation of a new job
Alt3	the creation of a new process
Alt4	increasing the priority of a task

45	In operating systems, the scheduling algorithm in which starvation occurs more frequently is
Alt1	First Come First Serve
Alt2	Round robin
Alt3	Shortest Job First
Alt4	Earliest Deadline First

46	External fragmentation is a problem occurring in the following memory management technique
Alt1	Cache Memory Management
Alt2	Virtual Memory Management
Alt3	Paged Memory Management
Alt4	Segmented Memory Management

47	SHA-1 has a message digest of
Alt1	160 bits
Alt2	512 bits
Alt3	628 bits
Alt4	820 bits

48	The number of rounds performed by the DES algorithm is
Alt1	8
Alt2	16
Alt3	24
Alt4	32

49	Euclidean Algorithm is used to find
Alt1	The L.C.M of two numbers
Alt2	The G.C.D of two numbers
Alt3	The remainder of division
Alt4	The factors of a number

50	Euler's Phi function is used in
Alt1	DES Algorithm
Alt2	AES Algorithm
Alt3	RSA Algorithm

Alt4	DSA Algorithm
------	---------------

51	The sequence of events that happen during a typical fetch operation is
Alt1	PC->MAR->Memory->MDR->IR
Alt2	PC->Memory->MDR->IR
Alt3	PC->Memory->IR
Alt4	PC->MAR->Memory->IR

52	A byte addressable computer has a memory capacity of 2m Kbytes and ca perform 2n operations. An instruction involving 3 operands and one operator needs a maximum of
Alt1	3m bits
Alt2	3m+n bits
Alt3	m+n bits
Alt4	5m+0

53	A computer uses ternary system instead of the traditional binary system. An 'n' bit string in the binary system will occupy
Alt1	3+n ternary digits
Alt2	$2n/3$ ternary digits
Alt3	$N(\log_2 3)$ ternary digits
Alt4	$N(\log_3 2)$ ternary digits

54	Which of the following rules regarding the addition of 2 given numbers is correct, if negative numbers are represented in 2's complement form?
Alt1	Add sign bit and discard carry, if any
Alt2	Add sign bit and add carry, if any
Alt3	Don't add sign bit and discard carry bit, if nay
Alt4	Don't add sign bit and add carry, if any

55	The working of a staircase switch is a typical example of the logical operation
Alt1	OR
Alt2	NOR
Alt3	Exclusive- OR
Alt4	Exclusive – NOR

56	The exponent of a floating point number is represented in excess-N code so that
Alt1	The dynamic range is larger
Alt2	The precision is high
Alt3	The smallest number is represented by all zeros
Alt4	Overflow is avoided

57	With a clock frequency of 3MHz, the execution time for instruction, "STA addr" of 8085will be
Alt1	4333ns
Alt2	3975ns
Alt3	3115ns
Alt4	3960ns

58	Which of the following lists the interrupts in decreasing priority?
Alt1	TRAP, RST 5.5, RST 6.5, RST 7.5, INTR
Alt2	INTR, TRAP, RST 7.5, RST 6.5, RST 5.5
Alt3	TRAP, RST 7.5, RST 6.5, RST 5.5, INTR
Alt4	RST 7.5, RST 6.5, RST 5.5, TRAP, INTR

59	Consider the following four instructions i. PUSH PSW ii. CALL ADDR iii. XTHL iv. RST n The stack pointer will be affected by the instruction(s)
Alt1	1 only
Alt2	1 and 2 only
Alt3	1,2 and 4 only
Alt4	1,2 and 3 only

60	MVI B, 00 MVI A, 1cH DCR B DAA STA TEMP HLT The content of the TEMP location after the execution of the above program is
Alt1	1Ch
Alt2	22h
Alt3	82h
Alt4	12h

61	The depth of a complete binary tree with n nodes is (log is to the base two)
Alt1	$\log(n+1) - 1$
Alt2	$\log(n)$
Alt3	$\log(n-1) + 1$
Alt4	$\log(n) + 1$

62	A hash function f defined as $f(\text{key}) = \text{Key} \bmod 7$, with linear probing, is used to insert the keys 37, 38, 72, 48, 98, 11, 56, into a table indexed from 0 to 6. What will be the location of key 11?
Alt1	3
Alt2	4
Alt3	5
Alt4	6

63	The Ackermann's function
Alt1	Has quadratic time complexity
Alt2	Has exponential time complexity

Alt3	Can't be solved iteratively
Alt4	Has algorithmic time complexity

64	15. Stack A has the entries a,b,c(with a on top). Stack B is empty. An entry popped out of stack A can be printed immediately or pushed to stack B. An entry popped out of stack B can be printed. In this arrangement, which of the following permutations of a,b,c is not possible?
Alt1	b a c
Alt2	b c a
Alt3	c a b
Alt4	a b c

65	The postfix equivalent of the prefix * + a b - c d is
Alt1	ab + cd - *
Alt2	ab cd + - *
Alt3	ab + cd * -
Alt4	ab + - cd *

66	A hash table has space for 100 records. What is the probability of collision before the table is 10% full
Alt1	0.45
Alt2	0.5
Alt3	0.3
Alt4	0.34(approximately)

67	Unrestricted use of goto is harmful, because it
Alt1	Makes debugging difficult
Alt2	Increases the running time of the program
Alt3	Increases memory requirement of program
Alt4	Results in the compiler generating longer machine code

68	The height of a binary tree is the maximum number of edges in any root to leaf path. The maximum number of nodes in a binary tree of height h is
Alt1	$2^h - 1$
Alt2	$2^{h-1} - 1$
Alt3	$2^{h+1} - 1$
Alt4	2^{h+1}

69	Working set(t,k) at an instant of time ,t, is the set of
Alt1	K future references that the operating system will make
Alt2	Future references that the operating system will make in the next k time units
Alt3	K references with high frequency
Alt4	Pages that have been referenced in the last k time units

70	Dijkstra's banking algorithm in an operating system solves the problem of
Alt1	Deadlock avoidance
Alt2	Deadlock recovery
Alt3	Mutual exclusion

Alt4	Context switching
71	An operating system contains 3 user processes each requiring 2 units of resource R. The minimum number of units of R such that no deadlock will ever occur is
Alt1	3
Alt2	4
Alt3	5
Alt4	6
72	Dirty bit is used to show the
Alt1	Page with corrupted data
Alt2	Wrong page in the memory
Alt3	Page that is modified after being loaded into cache memory
Alt4	Page that is less frequently accessed
73	In paged memory, the page hit ratio is 0.35. The time required to access a page in secondary memory is equal to 100ns. The time required to access a page in primary memory is 10ns. The average time required to access a page is
Alt1	3ns
Alt2	68ns
Alt3	68.5ns
Alt4	78.5ns
74	Consider a system having 'm' resources of the same type. These resources are shared by 3 processes A,B,C which have peak time demands of 3,4,6 respectively. The minimum value of 'm' that ensures that deadlock will never occur is
Alt1	11
Alt2	12
Alt3	13
Alt4	14
75	If there are 32 segments, each of size 1kbytes, then the logical address should have
Alt1	13 bits
Alt2	14 bits
Alt3	15 bits
Alt4	16 bits
76	Thrashing
Alt1	Reduces page I/O
Alt2	Decreases the degree of multiprogramming
Alt3	Implies excessive page I/O
Alt4	Improves the system performance
77	In airline reservation system, the entities are date, flight number, place of departure, destination, type of plane and seat availability. The primary key is
Alt1	Flight number
Alt2	Flight number + place of departure

Alt3	Flight number + date
Alt4	Flight number + destination

78	For a database relation R(a,b,c,d) where the domains of a,b,c, and d 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 in
Alt1	First normal form but not in the second normal form
Alt2	Second normal form but not in the third normal form
Alt3	Third normal form
Alt4	Fifth normal form

79	The employee salary should not be greater than Rs.2000. This is
Alt1	Integrity constraint
Alt2	Referential constraint
Alt3	Over-defined constraint
Alt4	Feasible constraint

80	CSG can be recognized by a
Alt1	FSM
Alt2	DPDM
Alt3	NDPDM
Alt4	Linearly bonded memory machine

81	If there exist a TM which when applied to any problem in the class, terminates if the correct answer is yes, and, may or may not terminate otherwise is said to be
Alt1	Stable
Alt2	Unsolvable
Alt3	Partially solvable
Alt4	Unstable

82	If the instructions are executed in parallel, whenever the required operands are available, then the execution time of the previous problem is logically same as that of sequentially executing
Alt1	3 statements
Alt2	2 statements
Alt3	4 statements
Alt4	5 statements

83	Word length in microprocessors is indicated by
Alt1	Number of bits that can be processed by CPU at any one time
Alt2	32 bit word length that the CPU is capable to process at any one time
Alt3	8 bits of word length that the CPU is capable to process at any one time
Alt4	64 bit word length that the CPU is capable to process at any one time

84	Bus bandwidth is indicated by
----	-------------------------------

Alt1	Data bits times frequency
Alt2	Frequency of multiplexed path
Alt3	Frequency of data transfer
Alt4	Base band frequency

85	Microns in CPU represents
Alt1	Number of transistors
Alt2	Distance between transistors
Alt3	Number of circuits
Alt4	Technology of circuits

86	L1 cache memory is located in
Alt1	Motherboard
Alt2	Processor
Alt3	System Memory
Alt4	On-board memory

87	MIPS is the term to represent
Alt1	Number of instructions in memory
Alt2	Number of processors in system
Alt3	Execution speed of processor
Alt4	Number of memory in processor

88	Fault-tolerance in computing refers to
Alt1	Product of the system from hardware
Alt2	Continued operation even in failures
Alt3	Software to correct errors
Alt4	System to correct errors

89	XML supports
Alt1	Middleware for business system
Alt2	common data format for business
Alt3	Proprietary data format
Alt4	Back-end system

90	In an RDBMS when data are normalized
Alt1	Attributes in the table depend on primary key
Alt2	Attributes in the table depend on secondary key
Alt3	Attributes in the table depend on primary key and secondary key
Alt4	Attributes in the table are available in the reduced form

91	SQL is
Alt1	The combination of MOM and DOM
Alt2	The combination of DML and DDL
Alt3	The combination of UML and DDL
Alt4	The combination of UML and SDL

92	OLAP data are supported by
Alt1	Arrays
Alt2	Pointers
Alt3	Stack
Alt4	Tree

93	Baseband transmission is
Alt1	Digital and multiple signals at a time
Alt2	Digital and one signal at a time
Alt3	Analog and one signal at a time
Alt4	Analog and multiple signals at a time

94	Microwave towers cannot be spaced more than
Alt1	120 miles apart
Alt2	90 miles apart
Alt3	60 miles apart
Alt4	30 miles apart

95	The speed of OFC ranges
Alt1	560 kbps to 500 mbps
Alt2	256 kbps to 560 mbps
Alt3	500 kbps to 25 Tbps
Alt4	1 mbps to 15 mbps

96	Parity bits are used
Alt1	At the sender end to add error
Alt2	At the receiver end if bits are lost
Alt3	Both at sender and receiver end
Alt4	Both at sender and Receiver for errors

97	Forward error correction
Alt1	Requires receiver to correct data stream
Alt2	Requires sender to correct data stream
Alt3	Both sender and receiver to correct data stream
Alt4	none of the above

98	Primary rate ISDN supports
Alt1	13 B channels and 4 D channels
Alt2	23 B channels and 1 D channels
Alt3	35 B channels and 1 channels
Alt4	45 B channels and 4 D channels

99	DSL uses
Alt1	Dedicated point-to-point lines
Alt2	Satellite link channels
Alt3	OFC cable based channels
Alt4	Existing telephone lines

100	Bluetooth's maximum transmission speed is
Alt1	420 kbps
Alt2	520 kbps
Alt3	620 kbps
Alt4	720 kbps