## SET-"X"

(Total No. of printed pages: 31)

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(PHD/URS-EE-DECEMBER-2022)

## COMPUTER SCIENCE

sr. No. 10053

Code	JOMI OTER SCIENC	
Time: 11/4 Hours	Total Questions : 100 (in figure) Father's N	Max. Marks: 100 (in words)
Roll No.	Father's N	ame:
Name:	Date of Exa	amination:
Mother's Name:		
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SET-X Code-A

		Or		4.	S. S.	2.	Arc. me	1	Question No.
(3) 1638	(1) 2640	Two people: Amar and Akbar have picked 10 Mangoes, 15 Banana and 14 Apples. What is the number of ways they can divide the fruits between them:	(1) 03 (3) 27	A PERT network has 09 activities on its critical path. The standard deviation of each activity on the critical path is 03. The standard deviation of the critical path is:	A graph with n vertices will definitely have a parallel edge or self-loop, if the total number of edges are:  (1) Less than (n-1)  (2) Greater than (n-1)/2  (3) Greater than (n-1)  (4) Greater than n(n-1)/2	The minimum number of colors needed to color a graph having vertices and 2 edges is:-  (2) 2  (3) 3 constant and a color a graph having vertices and 2 edges is:-  (4) 4	<ul> <li>(X^Y)→(Z'^X)→(X≡1)?</li> <li>(1) Contradiction</li> <li>(2) Valid</li> <li>(3) First Order Logic</li> <li>(4) None of the above</li> </ul>		
(4) 1148	(2) 2100	tbar have picked 10 Mang ber of ways they can div	(2) 09 (4) 81	tivities on its critical path. ' itical path is 03. The star	ill definitely have a parallel edg are:- (2) Greater than (n-1)/2 (4) Greater than n(n-1)/2	f colors needed to color a  (2) 2  (4) 4	(2) Valid (4) None of the above	qual to the logical express	Questions
	or the public of the	oes, 15 Banana and 14 ide the fruits between	off Assignation 18	The standard deviation ndard deviation of the	llel edge or self-loop, if  1)/2  n1)/2	or a graph having n (>3)	Server request and to see above 19 (4)	sion. http://dx.A8	NO.

PHD/URS-EE-DEC-2022 (Computer Science) Code-A (1)

Questions  c sided unbiased dice with 04 Green faces and 04 Blue fan times. Which of the following combinations is the most like e experiment?  03 Green faces and 04 Blue faces  04 Green faces and 02 Blue faces  05 Green faces and 01 Blue face  contains 2 Pens, 3 Pencils and 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners. Item are dag at random, one at a time, without replacement. The proing 2 Pen first followed by 3 Pencils and 4 Sharpeners. Item are dag at random of the proing 2 Pen first followed by 3 Pencils and 4 Sharpeners. Item are dag at random of the proing 2 Pen first followed by 3 Pencils and 4 Sharpeners. Item are dag at random of the proing 3 Pencils and 4 Sharpeners. Item are dag at random of the proing 3 Pencils and 4 Sharpeners. Item are dag at random of the proing 3 Pencils and 4 Sharpeners. Item are dag at random of the proing 3 Pencils and 4 Sharpeners.	8. In a (1)	(1) (2) (3)	7. A	6. As sev of 1 (2) (2)	Question No.
s and 04 Blue faces ins is the most likely on the face of the face	a graph, if e = (u, v), then if means:  u is adjacent to v but v is not adjacent to u e begins at u and ends at v  u is predecessor and v is successor both (2) and (3)	3/560 3/560 3/560 3/560 3/560 (*-3) 2/315  1/1260 1/1260 1/1260	bag contains 2 Pens, 3 Pencils and 4 Sharpe te bag at random, one at a time, without repl	six sided unbiased dice with 04 Green face even times. Which of the following combination of the experiment?  1) 03 Green faces and 04 Blue faces  2) 04 Green faces and 03 Blue faces  3) 05 Green faces and 02 Blue faces	
	ne alreine i metige vytae. Re	The forest of th	eners. Item are drawlacement. The probab	es and 04 Blue faces i ons is the most likely o COS (A SHELL S) INDIVIDUAL OF SHELL S) BALLY DIO 1927 (5) BALLY DIO 1927 (5)	Code-A

Code-V

SET-X Code-A

111	10. 10. benty	очал	<b>9.</b>	No.
Convert the following SOP expression to an equivalent POS expression: $ABC+A\overline{B}\overline{C}+A\overline{B}C+AB\overline{C}+\overline{A}\overline{B}C$ $(1) (A+B+C)(A+\overline{B}+C)(A+\overline{B}+\overline{C})$ $(2) (\overline{A}+\overline{B}+\overline{C})(A+\overline{B}+C)(A+\overline{B}+C)$ $(3) (\overline{A}+\overline{B}+\overline{C})(\underline{A}+B+\overline{C})(\overline{A}+B+C)$ $(4) (A+B+C)(\overline{A}+B+\overline{C})(A+\overline{B}+C)$	Honda Automobile contracted to buy shock absorbers from two suppliers Honda Automobile contracted to buy shock absorbers from two suppliers X and Y. X supplies 60% and Y supplies 40% of the shock absorbers. All shock absorbers are subjected to a quality test. The ones that pass the quality test are considered reliable. Of X's shock absorbers, 96% are reliable. Of Y's shock absorbers, 72% are reliable. The probability that a randomly chosen shock absorber, which is found to be reliable, is made by Y is:  (1) 0.720 (2) 0.667 (3) 0.334 (4) 0.288	the papers is thrue such test of the description of the (1) q 0.06 houses used togs and (2) 0.50 that don't a straighted the (3) 0.12 (4) 0.18	An examination consists of two papers; X and Y. The probability of failing in X is 0.3 and that in Y is 0.2. Given that a student has failed in Y, the probability of failing in X is 0.6. The probability of a student failing in both	- Charles

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Question No. parora оптрыя 16. 18. (1) 1256,01 to 136 graph marking (2) 3128 of the 15d w . The 15d w 15d instruction and its branch target is I9. If the branch is taken during the each buffer is 1 ns. A program consisting of 12 instructions  $I_1$ ,  $I_2$ ,  $I_3$ ,.... $I_{12}$ program will be describing on it is being to an eliabeth a control execution of this program, then the time (in ns) needed to complete the is executed in this pipelined processor. Instruction I, is the only branch There are intermediate storage buffers after each stage and the delay of Consider an instruction pipeline with five stages without any branch (1) 32 How many 3-to-8 line decoders, with an enable input, are needed to construct at 6-to-64 line decoder, without using any other logic gates? Which one of the following circuits is not equivalent to a 2-input XNOR 3 for FI, DI, FO, EI and WO are 5 ns, 7ns, 10 ns, 8 ns and 6 ns, respectively. prediction : Fetch Instruction (FI) Decode Instruction (DI). Fetch Operand (FO), Execute Instruction (EI) and Write Operand (WO). The stage delays 4 3 (exclusive NOR) gate? Questions (2) 16 (4) 165 DOLESSTEEN SEED STRUCTURE

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Code-A SET-X

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(3) 5, 4, 3, 1, 2	(1) 3, 4, 5, 2, 1	order :-	Which one of the following using stack assuming the	(3) 5	(1) 2		evaluate this expression?	in memory, what will be	produce result only in a re	by the machine, only when	memory. The binary opera	and store instructions. Ti	store architecture, in whi	Consider evaluating the fo	(3) Dynamic Memory	(I) Static memory	Which memory is difficult	
(4) 1, 5, 2, 3, 4	(2) 3, 4, 5, 1, 2	omenhee em en	Which one of the following permutations can be obtained as the output using stack assuming that the input is the sequence 1 9 2 4 5 :- that	(4) 7	(2) 3	© © ©	· •	in memory, what will be the minimum number of registers needed to	produce result only in a register. If no intermediate results can be stored	by the machine, only when the operands are in registers. The instructions	memory. The binary operators used in this expression tree can be evaluated	and store instructions. The variables a, b, c, d and e initially stored in	store architecture, in which memory can be accessed only through load	Consider evaluating the following expression tree on a machine with load-	(4) None of these	(2) ROM	Which memory is difficult to interface with processor?	Questions
1		1, 2, 3, 4, 5 in that	ained as the output		18. Winds on	(3) 52 (1) 32 (4) (1) 33 (4) (1)		registers needed to	esults can be stored	ers. The instructions	tree can be evaluated	e initially stored in	d only through load	a machine with load-	A LANDER DE	- Thomasina	7 iskumoO   .81	100

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Code Questions

> Code-A SET-X

Question No. 22. argument, and uses a stack S to do processing. Following is C like pseudo code of a function that takes a Queue Q as an

void fun (Queue \*Q)

// Run while Q is not empty stack S; // Creates an empty stack S

while (lisEmpty(Q))

// Run while Stack S is not empty push (&S, deQueue (Q));

// deQueue an item from Q and push the dequeued item to S

while (!isEmpty(&S))

enQueue(Q, pop (&S)); // Pop an item from S and enqueue the popped item to Q

- (1) Removes the last from Q
- 29 Keeps the Q same as it was before the call
- (3) Reverses the Q
- (4) Makes Q empty

PHD/URS-EE-DEC-2022 (Computer Science) Code-A (7)

Code-A SET-X

24 Consider the following function implemented in C: - a garden line void goto (int x, inty) essente als of & dasta a sout has thramegra (1) ite #include<stdio.h> What will be the output when you compile and run the following C code? (3) 0, 1 The output of invoking goto (1, 1) will be which of the following: 3 int main () x = 0; y = ptr; p = ptr; char \*\* ptr[] = {8+3, 8+2, 8+1, 8}, \*\*\*p; static char \*s[] = {"black", "white", "pink", "violet"); print f ("%d, %d", x, y); ptr = & x; int ptr; return 0; printf("%s", \*\*p+1); \*ptr = 1; E. N hob art term point 2 and endirents, the bolibag green to O Mgagnane an item from Q and pach the new Questions stack S; // Creates an empty stack S Kenthe par of mathematic secretaria (4) let (2) ack The wants of as not something with (Bellimpin (61)) ्रिक्ष अवस्था (दिश्वस्थात अति)

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> Code-A SET-X

Question		#ir	~ £			~	<u> </u>	26. If	(S)	27. W	- v			T se lora			6.0		-		
Ð	in the output of the program?	tdio.h>	int main ()	int i = 4, j = 8; printf("%d, %d, %d\n", i j&j i, i j&j i, i^j);	return 0; havy is the se rede	The half	112, 1, 2 32, 1, 12	a node in a BST has two s	) two children	What will be the output of the following C program?	void count(int n)	static int $d = 1$ ;	printf("%d", n);	printf("%d", d); d++;	if(n>1) count(n-1); printf("%d", d);		yoid main()	ing count(3); has speed at serious	(1) 312213444 (2) 312111333	312111	(4) 3122134
Questions	e program?	21	ga sanday a francis (3) D	&j i,i j&j i,i^j);	return O; may to the series of Punchan Paraber as an angular to return	anti caseitti "pitspiani ilosi up	$\begin{array}{c} (2) & 12, 12, 12 \\ (4) & -64, 1, 12 \end{array}$	If a node in a BST has two sub-tree, then its in-order predecessor has:	<b>4</b>	Œ,	S II SHEARD (E.S. S.) SHEARS IN	300		one the cotage value of the bac	84 (2)	25 (4)	yoid main(). Star add at abroper also be guirabha add taidt on beautson.	THE STATE OF THE SECOND SECONDS		4	
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PHD/URS-EE-DEC-2022 (Computer Science)

PHD/URS-EE-DEC-2022 (Computer Science) Code-A

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SET-X
Code-A

		81.	-12-5			80		29.		No.
	<ul><li>(1) Dense</li><li>(3) Sparse</li></ul>	A file is organized so that the ordering of data records is the same, as or close to the ordering of data entries in some index. Which one of the following is that Index?	(1) 96	What is the return value of the function join when it is called as join (345.10)?	unsigned int join (unsigned int n, unsigned int r) { $\frac{d}{d}$ so the variable if $(n > 0)$ return ( $(n\% r) + join(n/r, r)$ );	(4) void pass(*fptr){}	<ul> <li>(1) void pass(int (*fptr)(int, float, char)){}</li> <li>(2) void pass(*fptr)(int, float, char)){}</li> <li>(3) void pass (int (*fptr)){}</li> </ul>	Correct syntax to pass a Function Pointer as an argument	operation takes linear time in the worst case?  (1) To empty a queue (2) Deletion  (3) Insertion (4) None	In the array implementation
	(2) C	orderi entrie	<b>4 2</b>	the fu	nt n, un n(n/r, r)		float, c	ction P	n the w (2) (4)	Questions
	Clustered Unclustered	ng of dat	48 == 4/1 12	nction jo	unction t usigned in );	the own a	:har)){} )){}	ointer as	he worst case (2) Deletion (4) None	S
br.	15 pa	ta record	hara(E. evq., q); f(U>D) cowar(n_1);	in "be" line out	hat take	Series Pres	30	an argu	i?	3 8
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SET-X

2 P	- j2	34. (	A order	33. V	32. U	Question No.
<pre>if P = 0 then Q := Q + 1; write (Q); T2: read (Q); read (P); if Q = 0 then P := P + 1; Write (P); Any non-serial interleaving of T1 and T2 for concurrent execution leads to:- (1) A serializable schedule (2) A conflict serializable schedule (3) A schedule for which a precedence graph cannot be drawn</pre>	zero: T1 : read (P);	Consider the following transactions with data items P and Q initialized to	sold to that customer.  (4) When entering an order quantity, the user must input a number and not some text (i.e., 12 rather than 'a dozen')	<ul> <li>Which of the following can be addressed by enforcing a referential integrity constraint?</li> <li>(1) All phone numbers must include the area code</li> <li>(2) Certain fields are required (such as the email address, or phone number) before the record is accepted</li> <li>(3) Information on the customer must be known before anything can be</li> </ul>	Using Relational Algebra the query that finds customers, who have a balance of over 1000 is:  (1) Π Customer_name (σ balance > 1000 (Deposit))  (2) σ Customer_name (Π balance > 1000 (Deposit))  (3) Both of the above  (4) None of the above	Questions questions

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SET-X Code-A

ning rouse of S'	42.	41.	20140, 2011 to 91 18417 al	Question No.
P1 29 P2 25 P3 10 P4 15 What is the total waiting time (1) 55 (3) 15	(1) x = 1, y = 2 (3) x = 2, y = 1 (4)  An Operating System uses Short scheduling algorithm. Consider the following processes:  Process Execution Time	A multithreaded program P executes with x number of number of locks for ensuring mutual exclusion while of memory locations. All locks in the program are non-rethread holds a lock l, then it cannot re-acquire lock l with thread is unable to acquire a lock, it blocks untilifiation and the minimum available. The minimum value of x and the minimum available. The minimum result in a deadlock are:	NATURAL JOIN can also be termed as  (1) Combination of Union and Cartesian Product (2) Combination of Selection and Cartesian Product (3) Combination of Projection and Cartesian Product (4) Combination of Union and Projection	Questions
15 30 45 for process P2? (2) 40 (4) 05	(1) x = 1, y = 2 (2) x = 1, y = 1 (3) x = 2, y = 1 (4) x = 2, y = 2  An Operating System uses Shortest Remaining Time first (SRTF) process scheduling algorithm. Consider the arrival times and execution times for the following processes:  Process Execution Time Arrival Time	A multithreaded program P executes with x number of threads and uses y number of locks for ensuring mutual exclusion while operating on shared memory locations. All locks in the program are non-re-entrant, i.e., if a thread holds a lock l, then it cannot re-acquire lock l without releasing it. If a thread is unable to acquire a lock, it blocks until the lock becomes available. The minimum value of x and the minimum value of y together for which execution of P can result in a deadlock are:	ned as artesian Product I Cartesian Product Id Cartesian Product rojection	Ons Ons

PHD/URS-EE-DEC-2022 (Computer Science) Code-A - 3 3 28 3 10 18 9 (13)

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SET-X

46.
A computer has twenty physical page frames which contain pages numbered 101 through 120. Now, a program accesses the pages numbered 1, 2, 100 in that order, and repeats the access sequence thrice. Which one of the following page replacement policies experiences the same number of page faults as the optimal page replacement policy for this program?  (1) First-in-first-out (2) Most-recently-used (3) Last-in-first-out (4) Least-recently-used

SET-X A-sbo0

SET-X Code-A

<b>49.</b>	ed bituso	48.	47.	Question No.
What are the characteristics of Host based IDS?  (1) Log are analyzed to detect tails of intrusion  (2) The host operating system logs in the audit information  (3) Logs includes logins, file opens, and program executions  (4) All of the above	following sentences is/are true?  (1) First fit algorithm allocates H2, H0, H3 for the mentioned request (2) Best fit algorithm allocates H2, H0, H3 for the mentioned request (3) First fit algorithm allocates H2, H6, H7 for the mentioned request (4) Worst fit algorithm allocates H2, H3, H6 for the mentioned request	G K _ E K	Thread pools help in:  (1) servicing multiple requests using one thread  (2) servicing a single request using multiple threads from the pool  (3) faster servicing of requests with an existing threads rather than waiting to create a new thread.	Questions

PHD/URS-EE-DEC-2022 (Computer Science) Code-A (15)

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55 52 . . (1) It is development of SRS of a system susquare successful (3) They are integrated closely with the TCP/IP stack watch packets (2) It models the normal usage of the network as a noise characterization (1) It is programmed to interpret a certain series of packets What are the characteristics of stack based IDS? (2) Process of successive changes of system from new and changed Which of the following is the System Development? (4) All of the above (1) Agile method carried out with automated testing to discover software problems? (1) Data integrity constant Which of the following is not a major design consideration of the system? (3) Parallel compilation method (2) Large systems method Which method recommends that very frequent system builds should be Availability of technically qualified personal to carry out design and None of the above Both (1) and (2) The host operating system logs in the audit information Response time required requirement Frequency of record updates development Questions NAME OF STREETING OF THE

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<ul> <li>(1) To minimize the development schedule</li> <li>(2) To evaluate the ongoing project's quality on a daily basis</li> <li>(3) Both (1) and (2)</li> <li>(4) None of the above</li> </ul>

X-738 A-9bo0

<b>61</b> .		60.	59.	Question No.
er of	System management Internship management Version management	Which of the following is an incorrect activity for the configuration management of a software system?  (1) Change management	Which of the following does not complement the decomposition techniques but offers a potential estimation approach for their impersonal growth?  (1) Empirical estimation models  (2) Decomposition techniques  (3) Automated estimation tools  (4) Both emprical estimation models and automated estimation tools  In CMM, the life-cycle activities of requirements analysis, design, code,	Questions
i i i i i i i i i i i i i i i i i i i	ii ii	guration	chniques frowth? roots frocode,	.07

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SET-X Code-A

Let $G = (V, E)$ be any connected undirected edge-weighted graph. The weight of the edges in $E$ are positive and distinct. Consider the following statements:  (i) Minimum Spanning Tree of $G$ is always unique (ii) Shortest path between any two vertices of $G$ is always unique.  Which of the above statements is necessarily true? (1) (i) only (2) (ii) only (3) Niether (i) nor (ii) (4) Both (i) and (ii)  Let $T$ be a binary search tree with 15 nodes. The minimum and maximum possible heights of $T$ are: (Please note that the height of a tree with a single node is $0$ ) (1) 5 and 14 respectively (2) 14 and 5 respectively (3) 3 and 14 respectively (4) 14 and 8 respectively (5) 3 and 14 respectively (6) 17 and 18 respectively (7) 19 column major (8) matrix major (9) row major (10) column major (11) column major (12) row major (13) matrix major (14) none of these  The number of distinct binary trees with 3 nodes, which when traversed in post order gives the sequence A, B, C is: (1) 3 (4) 7
uestions  lected undirected edge-weighte positive and distinct. Consider positive and distinct. Consider e of G is always unique any two vertices of G is always of a secessarily true?  (2) (ii) only (4) Both (i) and (ii)  with 15 nodes. The minimum secase note that the height of a tree as ease note that the height of a tree tes then the array has been st tes then the array has been st tree that the height of a tree tes then the array has been st tes then the array has been st tree A, B, C is:  (2) 9  (4) 7

子田語 A-9500

8 3 5 (4) e-n-1 3 (2) e-n+1 (1) n-e+1From a complete graph having n nodes and e edges, we can construct a spanning tree by removing maximum \_\_\_\_edges : Pall to the (2) 1, 8, 10, \_\_\_\_\_3 Consider a hash table of size seven, with starting index zero, and a hash (1) 8, \_\_\_\_\_\_10 empty location in the table. of the following is the contents of the table when the sequence 1, 3, 8, 10 is inserted into the table using closed hashing? Note that '\_' denotes an function (3x + 4) mod 7. Assuming the hash table is initially empty, which (2) 64 and 5 respectively (1) 63 and 6 repsectively The height of a tree is the length of the longest root-to-leaf path in it. The maximum and minimum number of nodes in a binary tree of height 5 are : nte-1 1, 10, 8, \_\_\_\_\_3 31 and 5 respectively 32 and 6 respectively Questions egone at white another is a continued by the second

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Code-A SET-X

Question No. In the following DAG, find out the number of required stacks in order to represent it in a Graph Structured Stack: Questions

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		)(t		
	+	The second	l)gr	

(3) 3

70.

vertices?

(<del>2</del>)

MULTI STEEDING LINE TO IN

(2) 2

b

(4) 4

What will be the Time Complexity to check if an edge exists between two

(1) O (V\*V)

(2) O (V+E)

71. Let < M > be the encoding of a Turing machine as a string over  $\sum = \{0, 1\}$ . (3) 0(1)

(4) O(E)

(1) decidable and recursively enumerable

Let  $L = \{ \langle M \rangle \mid M \text{ is Turing machine that accepts a string of length 2018} \}$ 

decidable but not recursively enumerable

Un-decidable but recursively enumerable

3 29

4 Un-decidable and not recursively enumerable

PHD/URS-EE-DEC-2022 (Computer Science) Code-A

PHD/URS-EE-DEC-2022 (Computer Science) Code-A

Code-Y

A-9boO

SET-X Code-A

No.	76.	76.	**************************************	77.
: !	An array n numbers is given, where n is an ever well as the minimum of these n numbers needs the following is true about the number of comp (1) At most 1.5n-2 comparisons are needed (2) At least nlog,n comparisons are needed (3) At least 2n-c comparisons, for some con (4) None of the above	Consider a hash table with collisions are resolved by cl order: 5, 28, 19, 15, 20, 33, 1 chain lengths in the hash to	(1) 3,3 and 3 (2) 3,0 and 1 (3) 0,1 and 3 (4) 3,2 and 0	The number of states in corresponding to the regulation following?  (1) 2  (3) 4
Questions	An array n numbers is given, where n is an even number. The maximum as well as the minimum of these n numbers needs to be determined. Which of the following is true about the number of comparisons needed?  (1) At most 1.5n - 2 comparisons are needed  (2) At least nlog <sub>2</sub> n comparisons are needed  (3) At least 2n - c comparisons, for some constant, c are needed  (4) None of the above	Consider a hash table with 9 slots. The hash function is $h(k) = k \mod 9$ . The collisions are resolved by chaining. The following 9 keys are inserted in the order: 5, 28, 19, 15, 20, 33, 12, 17, 10. The maximum, minimum, and average chain lengths in the hash table, respectively, will be which of the following?	ENERGY OF THE STANDARD AND AND AND AND AND AND AND AND AND AN	The number of states in the minimal deterministic finite automaton corresponding to the regular expression (0 + 1) * (10) will be which of the following?  (1) 2 (2) 3  (3) 4 (4) 5
3 8	num as	9. The lin the verage owing?	*	automaton which of the

PHD/URS-EE-DEC-2022 (Computer Science) Code-A (23)

 $Q \rightarrow R$ A canonical set of items is given below: (3) a shift-reduce conflict and a reduce-reduce conflict (2) neither a shift-reduce nor a reduce-reduce conflict (1) a reduce reduce conflict but not a shift-reduce conflict On input symbol < the set has, which of the following? S → L>R a shift-reduce conflict but not a reduce-reduce conflict Questions

ķ (1) LALR parsing table YACC builds up, which of the following? officients are resolved by charactering. I no orden 5. 83. 49. 12. 36, 63. 15, 11.

(2) SLR parsing table

chain engins in the hashirth

(3) Canonical LR parsing table

None of these

3 For the expression grammar E->E\*FIF+EIF F>F-Ind

Which of the following statement holds true?

(1) Precedence of - is higher \*

Ø Precedence of \* is hihger +

+ and - have same precedence

Precedence of + is higher \*

PHD/URS-EE-DEC-2022 (Computer Science) Code-A (24)

X-THE

Code-A SET-X

Question No. 81. A-9500 Consider a network with five nodes, N1 to N5, as shown below is bus stood 8 at tabead 18 to 4 Oc 18 to 18 to Questions E

The network uses a Distance Vector Routing Proctocol, Once, the Route have stabilized, the distance vectors at different nodes are as under:

N1: (0, 1, 7, 8, 4)

D FUIC N3: (7,6,0,2,6) solited applies a and decompositive N4: (8, 7, 2, 0, 4)

N2: (1, 0, 6, 7, 3)

payers are not both at a speech of high necessary pay

diginal dy ad abstitute to a Class St.

N5: (4, 3, 6, 4, 0)

nodes, N1 to N5, where the distance to itself is 0. Also, all links are symmetric and the cost is identical in both the directions. In each round, Each distance vector is the distance of best known path at that instance to that entry in their distance vectors. The cost of link N2-N3 reduces to 2 (in change in cost of a link will cause the two incident nodes to change only all nodes exchange their distance vectors with their respective neighbors. distance vector at node, N3? both directions). After the next round updates. What will be the new Then all nodes update the distance vectors. In between two rounds, any

PHD/URS-EE-DEC-2022 (Computer Science) Code-A (25)

(3) (7, 2, 0, 6, 3)

(4) (3, 1, 6, 0, 2) (2) (3, 2, 0, 2, 5)

(6, 4, 1, 0, 2)

(1) 1000 ms (3) 1010 ms	(1) 1000 ms (3) 1010 ms  84. Which of these are the features		
BOUGE TO DE VETTER TO SERVE ARESTORY OF LONGING STATE OF	The second secon	Uptions (2) Fragmentation The above on the graph of the above of the graph of the above of the graph of the above of the graph of the g	checksum following is used in

X-138 A-abo3

SET-X Code-A

Which of the following is/are example(s) of state-full application layer protocols?  (i) HTTP  (ii) TCP (iii) TCP (iv) POP3  (1) (i) and (ii) only (2) (ii) and (iv) only (3) (ii) and (iii) only (4) (iv) only  A serial transmission T1 uses 8 information bits, 2 start bits, 1 stop bit and 1 parity bit for each character. A synchronous transmission T2 uses 3 eight bit sync characters followed by 30 eight bit information characters. If the bit rate is 1200 bits/second in both cases. what are the transfer rates of T1 and T2?  (1) 60 characters/sec, 146 characters/sec (2) 80 characters/sec, 136 characters/sec (3) 100 characters/sec, 136 characters/sec (4) 100 characters/sec, 136 characters/sec (4) 101 characters/sec, 136 characters/sec (4) 101 characters/sec, 136 characters/sec (5) That the identity be authenticated (6) That the authentication be portable (8) That you establish an identity (4) All of the above

PHD/URS-EE-DEC-2022 (Computer Science) Code-A (27)

PHD/URS-EE-DEC-2022 (Computer Science) Code-A 1-43-34 J.G.H.4

SET-X Code-A

Code	261

Questions  th of the following is the Virtual machine conversion cloud Amazon Cloud Watch  AbiCloud  BMC Cloud Computing Initiative  None of the above  Python  Python  Python  Canalytics?  Analytics?  Python  Probabilities  Degree of truth  Both First search  Recursive best-first search  None of the mentioned	I					92			Ti on the	2	_	8	-		_	a	89. W	No.	Code-4
Questions    Questions	What is the heuristic function	What is the housistic funct			Depth-first search	Which of the following sear (1) Best-first search	Degree of truth	(2) Probabilities	(1) Discrete Set	The values of the set membe	(1) Python	Which of the following langu		(8) BMC Cloud Computing	(2) AbiCloud	(1) Amazon Cloud Watch	Vhich of the following is the	Ą.	
	5 5	on of gready host first sound?	That the state or they are	arch becured a grownlich edito noid W	100 operations are 1.13	ch uses only the linear space for searchi		The state of 12001 at 1801 at 180	The state of the state of the second	rship is represented by which of the follo				John.			Virtual machine conversion cioud:	lestions	Code

PHD/URS-EE-DEC-2022 (Computer Science) Code-A (28)

Which search is equal to MiniMax search but eliminates the branches the can't influence the final decision?  (1) Breadth-first search (2) Alpha-beta pruning (3) Depth-first-search (4) None of the above  Which of the following is called as transposition table? (1) Next value in the search (2) Hash table of next seen positions (3) Hash table of previously seen positions (4) None of the above  Which of the following search is complete and optimal when h(n) consistent? (1) A* search (2) Best-first search (3) Depth-first search (4) Both Best-first & Depth-first search  If A and B are two fuzzy sets with the following membership functions:	Which search is equal to MiniMax search but eliminates the branches that can't influence the final decision?  (1) Breadth-first search (2) Alpha-beta pruning (3) Depth-first-search (4) None of the above  Which of the following is called as transposition table? (1) Next value in the search (2) Hash table of next seen positions (3) Hash table of previously seen positions (4) None of the above  Which of the following search is complete and optimal when h(n) is
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	100.	99.
(4) True – this work always, and these multiple perceptrons learn classify even complex problems.	ving mu iving mu isfactoril a linear p hich of the False — False — insepar True — have to	Why are researchers take more interest in linearly separable problems of neural network?  (1) Because they are the only mathematical functions you can draw  (2) Becuase they are the only class of problem that Preceptron can solve successfully  (3) Because they are the only mathematical functions that are continue  (4) Because they are the only class of problem that network can solve successfully

### SET-"X"

(Total No. of printed pages: 31)

(DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

## (PHD/URS-EE-DECEMBER-2022)



### COMPUTER SCIENCE

Time: 11/4 Hours	Total Quest	ions : 100	Max. Marks: 100 (in words)
Roll No.	(in figure)	Fother's Nam	ne:
Name:	Name and the state of	_ Paulei Bruss	ination:
Mother's Name:	The state of the s	3.	mation
(Signature of the candid	date)	(Sign	nature of the Invigilator)
CANDIDATES MU	ST READ THE	FOLLOWIN	G INFORMATION

CANDIDATES MUST READ THE FOLLOWING INFORMATION/ INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

All questions are compulsory.

The candidates must return the Question book-let as well as OMR 1. answer-sheet to the Invigilator concerned before leaving the Examination Hall, 2. failing which a case of use of unfair-means / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.

Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by

Question Booklet along-with answer key of all the A,B,C and D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the Unversity website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case will considered.

The candidate MUST NOT do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question book-let itself. Answers

MUST NOT be ticked in the Question book-let.

There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.

Use only Black or Blue BALL POINT PEN of good quality in the OMR Answer-

BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.



Question No. 1 Let  $L = \{ \langle M \rangle \mid M \text{ is Turing machine that accepts a string of length 2018} \}$ . Let < M > be the encoding of a Turing machine as a string over  $\sum = \{0, 1\}$ . (1) decidable and recursively enumerable Questions

SET-X Code-B

(2) decidable but not recursively enumerable

2 3 of Hanoi problem with n discs will be, which of the following:-The recurrence relation capturing the optimal execution time of the towers **(4)** (1) T(n) = 2T(n-1)+1(3) T(n) = 2T(n-1) + n(2) T(n) = 2T(n-2) + 2Un-decidable but recursively enumerable Un-decidable and not recursively enumerable

(4) T(n) = 2T(n/2) + 1

exception? If L1 and L2 are regular languages, which among the following is an (2) L1 U L2 (1) L1-L2

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(4) All of the above

(3) L1 ∩ L2

SET-X Code-B

7 TOS B-abot

	90		# A	No.
(1) 3, 3 and 3 (2) 3, 0 and 1 (3) 0, 1 and 3 (4) 3, 2 and 0	<ul> <li>(2) At least nlog,n comparisons are needed</li> <li>(3) At least 2n - c comparisons, for some constant, c are needed</li> <li>(4) None of the above</li> <li>Consider a hash table with 9 slots. The hash function is h (k) = k mod 9. The collisions are resolved by chaining. The following 9 keys are inserted in the order: 5, 28, 19, 15, 20, 33, 12, 17, 10. The maximum, minimum, and average chain lengths in the hash table, respectively will be which of the 4-11.</li> </ul>	following is always true?  (1) A(n) = Ω (W(n))  (2) A(n) = O (W(n))  (3) A(n) = o (W(n))	Let $W(n)$ and A $(n)$ denote respectively, the worst case and average case running time of an algorithm executed on an input of size n. Which of the	Questions
<ul> <li>(2) At least nlog<sub>2</sub>n comparisons are needed</li> <li>(3) At least 2n - c comparisons, for some constant, c are needed</li> <li>(4) None of the above</li> <li>Consider a hash table with 9 slots. The hash function is h (k) = k mod 9 collisions are resolved by chaining. The following 9 keys are inserted in order: 5, 28, 19, 15, 20, 33, 12, 17, 10. The maximum, minimum, and average in the back table representation.</li> </ul>			lowing is always true? $A(n) = \Omega (W(n))$ A(n) = O (W(n)) $A(n) = O (W(n))$ A(n) = o (W(n))	

76	9	7	œ		7.	Question No.
	(2) neither a shift-reduce nor a reduce-reduce conflict (3) a shift-reduce conflict and a reduce-reduce conflict (4) a shift-reduce conflict but not a reduce-reduce conflict YACC builds up, which of the following?	$S \to L > R$ $Q \to R$ On input symbol < the set has, which of the following?  (1) a reduce-reduce conflict but not a shift-reduce conflict	canoni	following?  (1) 2  (2) 3	The number of states in the minimal deterministic finite automaton. The number of states in the minimal deterministic finite automaton.  Our or	

# SET-X Code-B

SET-X Code-B

12.	F	10.
Which method recommends that very frequent system bulds should be carried out with automated testing to discover software problems?  (1) Agile method  (2) Large systems method  (3) Parallel compilation method  (4) All of the above	Which of the following is the System Development?  (1) It is development of SRS of a system  (2) Process of successive changes of system from new and changed requirement  (3) Both (1) and (2)  (4) None of the above	For the expression grammar  E->E*FIF+EIF  F->F - I id  Which of the following statement holds true?  (1) Precedence of - is higher *  (2) Precedence of * is higher +  (3) + and - have same precedence  (4) Precedence of + is higher *
hould s?	chan	Su Su Su

Question	Questions
13.	Which of the following is not a major design consideration of the system?
	<ul> <li>(1) Data integrity constant</li> <li>(2) Availability of technically qualified personal to carry out design and</li> </ul>
	(3) Frequency of record updates
	(4) Response time required
14.	What is the main difference between program testing and system testing?
1	(1) System testing is tough and program testing is easy
	1
	(4) None of the above
15.	Which of the following is the major drawback of RAD model:
	(4) Both (a) and (b)
16.	Which of the following models doesn't necessitate defining requirements at the earliest in the lifecycle?
	(1) Spiral and Prototyping
	(2) RAD and Waterfall
	(3) Prototyping and Waterfall
	(4) Spiral and RAD

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(5)

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# SET-X Code-B

Question No.	
17.	Which of the following is the main intent of project metrices?  (1) To minimize the development schedule
	بن
	(3) Both (1) and (2)
	(4) None of the above
18.	Which of the following does not complement the decomposition techniques
	but offers a potential estimation approach for their impersonal growth?
	(1) Empirical estimation models
	Statistical property of the
	(3) Automated estimation tools
	(4) Both emprical estimation models and automated estimation tools
19.	In CMM, the life-cycle activities of requirements analysis, design, code,
	and test are described in which of the following?
	(1) Software subcontract Management
	(2) Software Quality Assurance
	(3) Software Quality Management
	(4) Software Product Engineering
20.	Which of the following is an incorrect activity for the configuration
	management of a software system?
	(1) Change management
	(2) System management
	(3) Internship management
	V. T. Chen

Outstine	Code	SET-
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	23.	toget or	22.	9	21. A	Question No.
<ul> <li>(3) Information on the customer must be known before anything can be sold to that customer.</li> <li>(4) When entering an order quantity, the user must input a number and not some text (i.e., 12 rather than 'a dozen')</li> </ul>	Which of the following can be addressed by enforcing a referential integrity constraint?  (1) All phone numbers must include the area code  (2) Certain fields are required (such as the email address, or phone number) before the record is accepted		Using Relational Algebra the query that finds customers, who have a balance of over 1000 is:  (1) [] Customer_name (\sigma balance > 1000 (Deposit))	following is that Index?  (1) Dense (2) Clustered (3) Sparse (4) Unclustered	A file is organized so that the ordering of data records is the same, as or close to the ordering of data entries in some index. Which one of the	Questions

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X-132

SET-X Code-B

PHD/URS-EE-DEC-2022 (Computer Science) Code-B
(8)

Question	Questions
•	Which of the following will be the maximum children of a B-tree of order
-	n2; and any any any party with control and about the distant's enterents of the
	3 3
	(3) n (4) n-1
29.	Which of the following can replace the below query?
	7 118
HILLIANS LPG	FROM instructor, teacher
	WHERE instructor, ID = teacher_ID;
	(1) select name, course_id from instructor natural join teacher;
	instructor_id = course_id;
	(3) select name, course_id from instructor
	(4) select course_in roll instruction join water
30.	
	200
180	Combination of Union and Projection
81.	Convert the following SOP expression to an equivalent POS expression:
	$ABC+A\overline{B}\overline{C}+A\overline{B}C+AB\overline{C}+\overline{A}\overline{B}C$
3 qiviso	(1) $(A+B+C)(A+B+C)(A+B+C)$
	(2) $(\overline{A} + \overline{B} + \overline{C}) (A + \overline{B} + C) (A + \overline{B} + C)$
	(3) $(\overline{A} + \overline{B} + \overline{C})(\underline{A} + B + \overline{C})(\overline{A} + B + C)$
	(4) $(A+B+C)(\overline{A}+B+\overline{C})(A+\overline{B}+C)$

SEL-X

SET-X

261-1

Cope-B

PHD/URS-EE-DEC-2022 (Computer Science) Code-B (10) 35 34. 32 (1) (01101)<sub>2</sub> (3) (11001)2 is (10011)<sub>2</sub> then the result is: In signed-magnitude binary divison, if the dividend is  $(11100)_2$  and divisor (4) Non restoring algorithm The most efficient method followed by computers to multiply two unsigned (3) Bit pair recording of multipliers (1) Booth alogrithm (2) Gated D-latch (2) Restoring algorithm (1) Gated JK - latch by causing reduction in the number of inputs? (4) Gated T- latch (3) Gated SR- latch Which circuit is generated from D-flip flop due to addition of an inverter (4) Counters which indicate how long ago their associated pages have 'Aging registers' are : -(3) Counters to keep track of the latest data structures referred (2) Counters to keep track of last accessed instruction (1) Registers which keep track of when the program was last acessed been referenced White of the followingswill be the rank? (1) edect pame, contest ig from men Questions (3) Combination of Propolities of (a) Challed and a specific to the (4) (01100)<sub>2</sub> (2) (10100)2 (0) solet name, course s (5) Combination of Uses SELECT DAME, COLLEGE CONTRACTOR

E

41.	8043					40.		39.	Question No.
The values of the set membership is represented by which of the following?  (1) Discrete Set  (2) Probabilities  (3) Degree of truth  (4) Both Degree of truth & Probabilities	(1) 2 ******** **************************	ALT STANDARD STORES OF THE TRANSPORT OF	in memory, what will be the minimum number of registers needed to evaluate this expression?	by the machine, only when the operands are in registers. The instructions produce result only in a register. If no intermediate results can be stored	and store instructions. The variables a, b, c, d and e initially stored in memory. The binary operators used in this common in the common in t	Consider evaluating the following expression tree on a machine with loadstore architecture, in which memory can be accessed only through load	(1) Static memory (2) ROM (3) Dynamic Memory (4) None of these	<b>.</b>	Questions

Question Questions		740
Altrameter A	ode-B	SET-X

of District	- 1	46.		1	Day III	- E	45.	N IN IN IN	7.670	na madda			43.			42.	Question No.
(3) Depth-first search (4) Both Best-first & Depth-first search	(1) A*search (2) Best-first search	Which of the following search is complete and optimal when h(n) is consistent?	(4) None of the above	(3) Hash table of previously seen positions	(2) Hash table of next seen positions	(1) Next value in the search	Which of the following is called as transposition table?	(3) Depth-first-search (4) None of the above	(1) Breadth-first search (2) Alpha-beta pruning	Which search is equal to MiniMax search but eliminates the branches that can't influence the final decision?	(3) $f(n) < h(n)$ (4) $f(n) > h(n)$	(1) $f(n) ! = h(n)$ (2) $f(n) = h(n)$	What is the heuristic function of greedy best-first search?	(3) Recursive best-first search (4) None of the mentioned	(1) Best-first search (2) Depth-first search	Which of the following search uses only the linear space for searching?	

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Code-B

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Question No. 47. 49. 48. 50. If A and B are two fuzzy sets with the following membership functions:-Why are researchers take more interest in linearly separable problems of How many types of polymerases are there in basic classification?  $\mu b(\chi) = \{0.1, 0.5, 0.2, 0.7, 0.8\}$ then what will be the value of μa ∩ μb? neural network? (1) {0.2, 0.5, 0.6, 0.7, 0.9}  $\mu a(\chi) = \{0.2, 0.5, 0.6, 0.1, 0.9\}$ **4 3** (1) Because they are the only mathematical functions you can draw 4 3 2 Which of the following is correct? off a linear part of the space itself, and they can then combine their results. satisfactorily - this is because of the fact that each perceptron can partition Having multiple perceptrons can actually solve the XOR problem (1) False - just having a single perceptron is enough {0.1, 0.5, 0.2, 0.1, 0.8} Becuase they are the only class of problem that Preceptron can solve True – perceptrons can do this but are unable to learn to do it – they True - this work always, and these multiple perceptrons learn to have to be explicitly hand-coded. inseparable functions, no matter what you do False - perceptrons are mathematically incapable of solving linearly Because they are the only class of problem that network can solve Because they are the only mathematical functions that are continue successfully successfuly classify even complex problems. Questions (2) {0.2, 0.5, 0.2, 0.1, 0.8} (4) {0.1, 0.5, 0.6, 0.1, 0.8} (4) (2) 5

55.	<u>ي</u> 5	52.	51.	Question
If the address of A [1][1] and A each element occupies 2 bytes order?  (1) column major  (3) matrix major  The number of distinct binary t post order gives the sequence.  (1) 3	Let T be a binary search tree with 15 nodes. The minimum and maximum possible heights of T are: (Please note that the height of a tree with a single node is 0)  (1) 5 and 14 respectively (2) 14 and 5 respectively (3) 3 and 14 respectively (4) 14 and 3 respectively	Let $G = (V, E)$ be any connected undirected edge-weighted graph. The weight of the edges in $E$ are positive and distinct. Consider the following weight of the edges in $E$ are positive and distinct. Consider the following statements:  (i) Mininum Spanning Tree of $G$ is always unique.  (ii) Shortest path between any two vertices of $G$ is always unique.  Which of the above statements is necessarily true?  Which of the above statements is necessarily true?  (1) (i) only  (2) (ii) only  (3) Niether (i) nor (ii)  (4) Both (i) and (ii)	nous	Questions

PHD/URS-EE-DEC-2022 (Computer Science) Code-B

SET-X Code-B

Question No. PHD/URS-EE-DEC-2022 (Computer Science) Code-B 56. 57. 89 59. maximum and minimum number of nodes in a binary tree of height 5 are: The height of a tree is the length of the longest root-to-leaf path in it. The Consider a hash table of size seven, with starting index zero, and a hash empty location in the table. of the following is the contents of the table when the sequence 1, 3, 8, 10 is spanning tree by removing maximum \_\_\_\_edges :-From a complete graph having n nodes and e edges, we can construct a (3) inserted into the table using closed hashing? Note that '\_' denotes ar function  $(3x + 4) \mod 7$ . Assuming the hash table is initially empty, which In the following DAG, find out the number of required stacks in order to (1) n-e+1 represent it in a Graph Structured Stack :-(3) n+e-1  $\Theta$ 3 63 and 6 repsectively 32 and 6 respectively 5----3 Questions (4) 4 (2) 2 (2) e-n+1 (4) 1, 10, 8, \_\_, \_\_, (2) 1, 8, 10, \_\_\_\_\_ 3 (4) 31 and 5 respectively (2) 64 and 5 respectively (4) e-n-1 C

60. What will be the Time Complexity to check if an edge exists between twertices?  (1) O (V*V) (2) O (V + E) (3) O (1) (4) O (E)  61. Consider a network with five nodes, N1 to N5, as shown below (N5)  (N5)  (N4)  (N4)  (N4)  (N4)  (N4)  (N4)  (N5)	Question No.	Questions
Consider a network with five nodes, N1 to N5, as shown belo		an edge exis
N4 2		Consider a network with five nodes, N1 to N5, as shown below  (N1)
	100	N4 2

The network uses a Distance Vector Routing Proctocol, Once, the Route have stabilized, the distance vectors at different nodes are as under:

N1: (0, 1, 7, 8, 4)

N2: (1, 0, 6, 7, 3)

N3: (7, 6, 0, 2, 6) N4: (8, 7, 2, 0, 4)

Each distance vector is the distance of best known path at that instance to nodes, N1 to N5, where the distance to itself is 0. Also, all links are symmetric and the cost is identical in both the directions. In each round, all nodes exchange their distance vectors with their respective neighbors. Then all nodes update the distance vectors. In between two rounds, any change in cost of a link will cause the two incident nodes to change only that entry in their distance vectors. The cost of link N2-N3 reduces to 2 (in both directions). After the next round updates. What will be the new distance vector at node, N3?

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(6, 4, 1, 0, 2) (7, 2, 0, 6, 3)

**4 2** 

(3, 2, 0, 2, 5)

(II)

SET-X Code-B

65.	63.	(pri	62.	Question No.
orthogonal frequency division multiplexing nich of the mentioned (2) Fragmentatio  Header checksum (2) Fragmentatio  (2) Fragmentatio  (3) Fragmentatio  (4) All of the above time division multiplexing space division multiplexing orthogonal frequency division multiplexing	Consider a source computer (S) transmitting a file of size $10^6$ bits to a destination computer (D) over a network of two routers (R <sub>1</sub> and R <sub>2</sub> ) and three links (L <sub>1</sub> , L <sub>2</sub> , and L <sub>3</sub> ). L <sub>1</sub> connects S to R1; L <sub>2</sub> connects R <sub>1</sub> to R <sub>2</sub> ; and L <sub>3</sub> connects R <sub>2</sub> to D. Let each link be of length $100$ km. Assume signals travel over each link at a speed of $10^8$ meters per second. Assume that the link bandwidth on each link is 1Mbps. Let the file be broken down into $1000$ packets each of size $1000$ bits. Find the total sum of transmission and propagation delays in transmitting the file from S to D?  (1) $1000$ ms (2) $1005$ ms (4) $1015$ ms	number of IP fragments will be transmitted and what will be the contents of offset field in the last fragment?  (1) 7 and 8880 (2) 7 and 1110  (3) 5 and 6400 (4) 8 and 6625	Host A sends a UDP datagram containing 8880 bytes of user data to host B over an Ethernet LAN. Ethernet frames may carry data up to 1500 bytes (i.e. MTU = 1500 bytes). Size of UDP header is 8 bytes and size of IP header is 20 bytes. There is no option field in IP header. How may total	Questions

66. Which of the protocols? (i) HTIP (ii) FIP (iii) TCP (iv) POP3 (I) (i) and (3) (ii) and (3) (ii) and 1 parity bit eight bit synthe bit rate T1 and T2? (1) 60 cha (2) 80 cha (2) 80 cha (3) 100 ch (4) 100 ch (4) 101 ch (58. Which of th (1) That in (2) That (2) That (3) That (4) All of	Questions
67. 67. 68.	Which of the following is/are example(s) of state-full application layer
67.	sols?
67.	HTTP
67. 68.	FIP
67.	TOP
67.	POP3
67. 67. 68. 68.	(i) and (ii) only (2) (ii) and (iv) only
67. 68.	(ii) and (iii) only (4) (iv) only
68.	A serial transmission T1 uses 8 information bits, 2 start bits, 1 stop bit and
88. A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	results but for each characters followed by 30 eight bit information characters. If
68.	the bit rate is 1200 bits/second in both cases. what are the transfer rates of
68.	nd T2?
68.	60 characters/sec, 146 characters/sec
- 1	80 characters/sec, 233 characters/sec
	100 characters/sec, 136 characters/sec
	100 characters/sec, 153 characters/sec
	Which of the following is required by Cloud Computing?
	That the identity be authenticated
	That the authentication be portable
	That you establish an identity
	All of the above
T	

PHD/URS-EE-DEC-2022 (Computer Science) Code-B

PHD/URS-EE-DEC-2022 (Computer Science) Code-B
(18)

Code-B

Question No. 69. 70. 71. Which of the following is the Virtual machine conversion cloud? (2) AbiCloud (1) Amazon Cloud Watch Which of the following language preferred for IoT analytics? (3) BMC Cloud Computing Initiative (1) Python 8 If a thread is unable to acquire a lock, it blocks until the lock becomes number of locks for ensuring mutual exclusion while operating on shared A multithreaded program P executes with x number of threads and uses y 3 (1) x = 1, y = 2available. The minimum value of x and the minimum value of y together thread holds a lock l, then it cannot re-acquire lock l without releasing it. memory locations. All locks in the program are non-re-entrant, i.e., if a (4) x = 2, y = 23 for which execution of P can result in a deadlock are:x = 1, y = 1PHP None of the above x = 2, y = 1Questions (2) DHTML (4) Java Script

PHD/URS-EE-DEC-2022 (Computer Science) Code-B

		An Operating System uses Shortest Remaining?  scheduling algorithm. Consider the arrival time the following processes:  Process Execution Time Arrival Time Process 10 0  P1 20 0  P3 10 30  P4 15 45  What is the total waiting time for process P2?  (1) 55 (2) 40  (3) 15 (4) 05  Consider a main memory with five page frames of page references: 3, 8, 2, 3, 9, 1, 6, 3, 8, 9, 3, of page faults than LRU?  (1) LRU incurs 2 more page faults than LRU  (2) Both incur the same number of page faults than LRU  (3) FIFO incurs 2 more page faults than LRU  (4) FIFO incurs 2 more page faults than LRU  (4) FIFO incurs 2 more page faults than LRU  (5) heap but not global variables  (6) heap but not global variables  (6) heap but not heap			Tedon!	20.00			73.	B		i.	74.	F		-	
g algorithm. Consider the arriving processes:  Execution Time Arriv  25  16  16  17  18  18  19  19  10  20  10  20  10  20  20  20  20  20	g algorithm. Consider the arrival times a g algorithm. Consider the arrival times a ring processes:  Execution Time Arrival Time  25 25 15 16 26 27 28 29 20 20 20 20 20 20 20 20 20 20 20 20 20	Execution Time Arrival times and executing processes:  Execution Time Arrival Time  20  20  25  15  16  30  15  16  27  18  18  18  19  19  10  20  20  20  20  20  20  20  20  20	the follow Process	PI	P2		What is (1) 55	(3) 15		Out (FI (1) LR		<b>4</b> 3		(1) ne			
tion Time Arriv  ass:  tion Time Arriv  15  30  45  aiting time for proce  (2) 40  (4) 05  amory with five page is 3, 8, 2, 3, 9, 1, 6, 3, 8  ith respect to page route to page route to page faults that as the more page faults that as a more page faults that more page faults that more page faults that more page faults that as the more page faults that as the more page faults that as a more page faults that as the more page faults that the more page faults t	tion Time Arrival Time  atting time for process P2?  (2) 40  (4) 05  anory with five page frames ano ast Recently Used (LRU)?  more page faults than LRU	Lynes Shortest Remaining Time first (SI  1. Consider the arrival times and execut  2. Arrival Time  1. Arrival Time  0  1. Arrival Time  0  1. Arrival Time  0  4. As  4.	ing process Execu	20	6 1		the total w		r a main me references: g is true w	FO) and Le U incurs 2	FO incurs 1	FO incurs 2	of the follor	ither globa	eap but not	oth heap an	lobal variab
Arriv  Arriv  0  15  30  45  for proce (2) 40 (4) 05  five page: to page rights that faults that faults that ables riables riables heap	test Remaining Time the arrival times a Arrival Time  Arrival Time  15  30  45  45  for process P2? (2) 40 (4) 05  five page frames and	Arrival times and execut the arrival times and execut  Arrival Time  0  15  30  45  for process P2? (2) 40 (4) 05  (4) 05  five page frames and the follow to page replacement policies by Used (LRU)? faults than LRU red by threads of a process? nor heap ables riables riables	yes:- tion Time	Til.		the man and	aiting time		mory with 3, 8, 2, 3, 1 ith respect	ast Kecent more page	more page	more page	wing is sha	lvariables	global vari	d global va	les but not
	al times and al Time and an Tifo ge faults an LRU an LRU an LRU	al times and execut al Time al Time ss P2? ss P2? ss P2? ss P2.	Arriv	. 0	8 F	45	for proce (2) 40	(4) 05	five page; 9, 1, 6, 3, 8 to page r ly Used (L	faults that	faults the	faults the	red by thr	nor heap		Š	heap

SET-X Code-B

77.	271	76.	75.	Question No.
Thread pools help in:  (1) servicing multiple requests using one thread  (2) servicing a single request using multiple threads from the pool  (3) faster servicing of requests with an existing threads rather than waiting to create a new thread.  (4) None of the above		A computer has twenty physical page frames which contain pages numbered 101 through 120. Now, a program accesses the pages numbered 1, 2, 100 in that order, and repeats the access sequence thrice. Which one of the following page replacement policies experiences the same number of page faults as the optimal page replacement policy for this program?  (1) First-in-first-out	Whenever a process need I/O to or from a clisk, it is seen.  (1) a system call to the operating system.  (2) a system call to the CPU.  (3) a system call to the kernel.  (4) a system call to the specific API.	Questions

Question No.	Questions
78.	ich memory consists  H5 H6
	₽ ×
	(1) First fit algorithm allocates H2, H0, H3 for the mentioned request (2) Best fit algorithm allocates H2, H0, H3 for the mentioned request
79.	What are the characteristics of Host based IDS?  (1) Log are analyzed to detect tails of intrusion  (2) The second of the solid information
	(3) Logs includes logins, file opens, and program executions
80.	What are the characteristics of stack based IDS?  (1) It is programmed to interpret a certain series of packets
	(3) They are integrated closely with the TCP/IP stack watch packets (4) The host operating system logs in the audit information
81.	Which one of the following permutations can be obtained as the output using stack assuming that the input is the sequence 1, 2, 3, 4, 5 in that order:
	3, 4, 5, 1,
	(3) 5, 4, 3, 1, 2 (4) 1, 5, 2, 3, 4

PHD/URS-EE-DEC-2022 (Computer Science) Code-B
(23)

PHD/URS-EE-DEC-2022 (Computer Science) Code-B
(22)

Question No. 82. Following is C like pseudo code of a function that takes a Queue Q as an argument, and uses a stack S to do processing. void fun (Queue \*Q) while (lisEmpty(Q)) while (!isEmpty(&S)) // Run while Q is not empty 2 (1) Removes the last from Q stack S; // Creates an empty stack S 3 enQueue(Q, pop (&S)); 4 // Pop an item from S and enqueue the popped item to Q  $\square$ // Run while Stack S is not empty // deQueue an item from Q and push the dequeued item to S push (&S, deQueue (Q)); Makes Q empty Keeps the Q same as it was before the call Reverses the Q Questions Пус ровость мотоль JULY TEB SOTT north self-builde. 田、田

PHD/URS-EE-DEC-2022 (Computer Science) Code-B

PHD/URS-EE-DEC-2022 (Computer Science) Code-B

(1) ite

3

(2) ack (4) let +p;

printf("%s", \*\*p+1);

return 0;

84,	or pass	83.	Question No.	MI-SON
<pre>What will be the output when you compile and run the rollowing \correct #include<stdio.h> int main () {     static char *s[] = {"black", "white", "pink", "violet"};     char ** ptr[] = {s+3, s+2, s+1, s}, ***p;     p = ptr;</stdio.h></pre>	The output of invoking goto (1, 1) will be which of the following: - (1) 0, 0 (2) 1, 0 (3) 0, 1 (4) 1, 1	Consider the following function implemented in C:- void goto (int x, int y)  {     int *ptx;     x = 0;     ptr = & x;     y = *ptx;     *ptx = 1;     print f ("%d, %d", x, y);	Questions	

#include < stdio.h> #finclude < stdio.h> int main ()  {													ľ	87.	86.							85.	No.
the program?  (2) 12, 12, 12 (4) -64, 1, 12  sub-tree, then its in-ord (2) no left child (4) no child f the following C program f the following C program (2) 312111333 (4) 3122134	3121112	312213444				<u> </u>	printf("%d", d);	if(n>1) count(n-1);		<pre>printf("%d", n);</pre>	static int $d = 1$ ;	(	void count(int n)	What will be the output or	If a node in a BST has two (1) no right child (3) two children		return 0;	printf("%d, %d, %d\n",	int $i = 4$ , $j = 8$ ;	_	int main ()	What will be the output of #include <stdio.h></stdio.h>	
	(4)	22		SOFTET OF	28( market );				St. Martines April		0.1354.0	thins hale <et illowy<="" td=""><td>pe mosmanapas emperation per</td><td>f the following C program</td><td>sub-tree, then its in-order (2) no left child (4) no child</td><td></td><td><math>\lambda = \mu D_0 T^{-1}</math></td><td>ilj&amp;jli, ilj&amp;jli, i^j); 🍃 🔊 = 😭</td><td></td><td>int "por;</td><td></td><td>the program?</td><td>Anesmone</td></et>	pe mosmanapas emperation per	f the following C program	sub-tree, then its in-order (2) no left child (4) no child		$\lambda = \mu D_0 T^{-1}$	ilj&jli, ilj&jli, i^j); 🍃 🔊 = 😭		int "por;		the program?	Anesmone

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90. 10 ga 3	<b>89.</b>
below he	90.
<ul> <li>(1) 96</li> <li>(3) 24</li> <li>(3) 24</li> <li>(3) Which of the following is equal (X^Y)→(Z'^X)→(X≡1)?</li> <li>(1) Contradiction</li> </ul>	F 18
	New York
Contradiction	

PHD/URS-EE-DEC-2022 (Computer Science) Code-B
(27)

	Questions		
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الماالما		Code-B	SET-X

98.	in 97. or 1	Question No.  96.  A
In a graph, if e = (u, v), then if means:  (1) u is adjacent to v but v is not adjacent to u  (2) e begins at u and ends at v	A bag contains 2 Pens, 3 Pencils and 4 Sharpeners. Item are drawn from the bag at random, one at a time, without replacement. The probability of drawing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners is:  (1) 3/560  (2) 2/315  (3) 1/1260  (4) 1/2443	Questions  A six sided unbiased dice with 04 Green faces and 04 Blue faces is rolled seven times. Which of the following combinations is the most likely outcome of the experiment?  (1) 03 Green faces and 04 Blue faces  (2) 04 Green faces and 03 Blue faces  (3) 05 Green faces and 02 Blue faces  (4) 05 Green faces and 01 Blue faces
	ers. Item are drawn from zement. The probability of sequently the 4 Sharpeners	and 04 Blue faces is rolled is the most likely outcome

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(29)

SET-X Code-B

An examination consists of two papers; X and Y. The probability of failing in X is 0.2. Given that a student has failed in Y, the probability of failing in X is 0.6. The probability of a student failing in both probability of failing in X is 0.6. The probability of a student failing in both the papers is:  (1) 0.06 (2) 0.50 (3) 0.12 (4) 0.18  Honda Automobile contracted to buy shock absorbers from two suppliers X and Y. X supplies 60% and Y supplies 40% of the shock absorbers. All shock absorbers are subjected to a quality test. The ones that pass the quality test are considered reliable. Of X's shock absorbers, 96% are reliable. Of Y's shock absorbers, yellable. The probability that a randomly chosen shock absorber, which is found to be reliable, is made by Y is:  (1) 0.720 (2) 0.667 (3) 0.334 (4) 0.288	100.	No. 99.
Questions  Its of two papers; X and Y is 0.2. Given that a solution (2) 0.50  (2) 0.50  (4) 0.18  Of and Y supplies 40% subjected to a quality to idered reliable. Of X's absorbers, 72% are relik absorber, which is four (2) 0.667  (4) 0.288	Honda Automobile co: X and Y. X supplies 6 shock absorbers are s quality test are cons reliable. Of Y's shock randomly chosen shoc Y is: (1) 0.720 (3) 0.334	An examination consist in X is 0.3 and that in probability of failing in the papers is:  (1) 0.06  (3) 0.12
	ntracted to buy shock al 10% and Y supplies 40% subjected to a quality to idered reliable. Of X's absorbers, 72% are relick absorber, which is fou (2) 0.667	Questions ts of two papers; X and Y. The probably is 0.2. Given that a student has fax is 0.6. The probability of a student (2) 0.50  (2) 0.50  (4) 0.18

## SET-"X"

(Total No. of printed pages: 31)

(DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

#### (PHD/URS-EE-DECEMBER-2022)



#### COMPUTER SCIENCE

Sr. No. 10059

Time: 174 Hours	Total Ques	tions: 100	Max. Marks: 100		
Roll No.	(in figure)		(in words)		
Name:		_ Father's Name:			
Mother's Name :		_ Date of Examination:			
(Signature of the candid	ate)	(Signat	ure of the Invigilator)		
CANDIDATES MUS	T READ THE	FOLLOWING	INFORMATION/		

INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

All questions are compulsory.

The candidates must return the Question book-let as well as OMR answer-sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.

Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by

the candidate.

Question Booklet along-with answer key of all the A,B,C and D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the Unversity website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case will considered.

The candidate MUST NOT do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question book-let itself. Answers

MUST NOT be ticked in the Question book-let.

There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.

Use only Black or Blue BALL POINT PEN of good quality in the OMR Answer-7.

BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.



SET-X Co/1e-C

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COMPUTER STREETS

	2. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	No.
Consider a main memory with five page frames and the following sequence of page references: 3, 8, 2, 3, 9, 1, 6, 3, 8, 9, 3, 6, 2, 1, 3. Which one of the following is true with respect to page replacement policies First In First Out (FIFO) and Least Recently Used (LRU)?  (1) LRU incurs 2 more page faults than FIFO  (2) Both incur the same number of page faults  (3) FIFO incurs 1 more page faults than LRU	number of locks for ensuring mutual exclusion while operating on shared memory locations. All locks in the program are non-re-entrant, i.e., if a thread holds a lock <i>l</i> , then it cannot re-acquire lock <i>l</i> without releasing it. If a thread is unable to acquire a lock, it blocks until the lock becomes available. The minimum value of x and the minimum value of y together for which execution of P can result in a deadlock are:  (1) x = 1, y = 2 (2) x = 1, y = 1 (3) x = 2, y = 1 (4) x = 2, y = 2  An Operating System uses Shortest Remaining Time first (SRTF) process scheduling algorithm. Consider the arrival times and execution times for the following processes:  Process Execution Time Arrival Time P1 20 0 P2 15 P3 10 30 P4 15 What is the total waiting time for process P2? (1) 55 (2) 40 (3) 15 (4) 05	Questions

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PHD/URS-EE-DEC-2022 (Computer Science) Code-C

(4) global variables (4) global variables but not heap (4) global variables but not heap (5) Whenever a process need I/O to or from a disk, it issues: (1) a system call to the operating system (2) a system call to the kernel (4) a system call to the specific API (5) A computer has twenty physical page frames which contain I 101 through 120. Now, a program accesses the pages num 100 in that order, and repeats the access sequence thrice the following page replacement policies experiences the spage faults as the optimal page replacement policy for thin (1) First-in-first-out (2) Most-recently-used (3) Last-in-first-out (4) Least-recently-used (2) servicing multiple requests using one thread (3) faster servicing of requests with an existing three waiting to create a new thread. (4) None of the above	Question No.
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	6.
. Thre (2) (3)	
(4) (3) (2) (1)	7.
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SET-X
Code-C
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No.	Questions	
<u>,</u>	Consider a swapping system in which memory consists of the	the following
	hole sizes in memory order:	
2772	H0 H1 H2 H3 H4 H5 H6 H7	
	10 K 4 KB 20 KB 18 KB 7KB 9 KB 12 KB 15	KB
9	and a successive segment request of 12 KB, 10 KB, 9 KB	KB. Which of the
V 8	following sentences is/are true?	
	(1) First fit algorithm allocates H2, H0, H3 for the mentioned request	ned request
	(2) Best fit algorithm allocates H2, H0, H3 for the mentioned request	ed request
-	(3) First fit algorithm allocates H2, H6, H7 for the mentioned request	ned request
	(4) Worst fit algorithm allocates H2, H3, H6 for the mentioned request	oned request
9.	What are the characteristics of Host based IDS?	
	(1) Log are analyzed to detect tails of intrusion	
_	(2) The host operating system logs in the audit information	п
	(3) Logs includes logins, file opens, and program executions	ıs
	(4) All of the above	
10.	What are the characteristics of stack based IDS?	
	(1) It is programmed to interpret a certain series of packets	sts
	(2) It models the normal usage of the network as a noise characterization	aracterization
	(3) They are integrated closely with the TCP/IP stack watch packets	ch packets
	(4) The host operating system logs in the audit information	Ď
		100

PHD/URS-EE-DEC-2022 (Computer Science) Code-C

H. 12 2 Ξ 4 3 argument, and uses a stack S to do processing. Following is C like pseudo code of a function that takes a Queue Q as an using stack assuming that the input is the sequence 1, 2, 3, 4, 5 in that Which one of the following permutations can be obtained as the output void fun (Queue \*Q) (1) 3, 4, 5, 2, 1 while (!isEmpty(&S)) enQueue(Q, pop (&S)); // Pop an item from S and enqueue the popped item to Q while (!isEmpty(Q)) // Run while Stack S is not empty // Run while Q is not empty stack S; // Creates an empty stack S 5, 4, 3, 1, 2 Makes Q empty Reverses the Q Keeps the Q same as it was before the call Removes the last from Q push (&S, deQueue (Q)); // deQueue an item from Q and push the dequeued item to S Questions (2) 3, 4, 5, 1, 2 1, 5, 2, 3, 4

SET-X Code-C

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SET-X

Question No. 13. 14. 181 int main () Consider the following function implemented in C:void goto (int x, int y) The output of invoking goto (1, 1) will be which of the following:-#include<stdio.h> What will be the output when you compile and run the following C code? 3 (1) 0,0 (1) ite  $\mathbf{x} = 0$ ; print f ("%d, %d", x, y); char \*\*  $ptr[] = \{s+3, s+2, s+1, s\}, ***p;$ static char \*s[] = {"black", "white", "pink", "violet"}; return 0; printf("%s", \*\*p+1); p = ptr;y = \*ptr;ptr = & x;int \*ptr; \*ptr = 1;ink Carsterna 9 yarwar (2) 1,0 196 T 5.D. Questions 4 2 ack let

PHD/URS-EE-DEC-2022 (Computer Science) Code-C (5)

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Desition   Questions   No.	ques  at will be the output of the p hude <stdio.h> main ()  ti = 4, j = 8; rintf("%d, %d, %d\n", i  j&amp;j  tturn 0;  112, 1, 2 32, 1, 12  node in a BST has two subno right child two children at will be the output of the ! count(int n)  atic int d = 1; printf("%d", n); printf("%d", d); d++; if(n&gt;1) count(n-1); printf("%d", d); d++; ount(3);  3 1 2 2 1 3 4 4 4  3 1 2 2 1 3 4 4 4</stdio.h>
Questions  tof the program?  (2) 12, 12, 12  (4) -64, 1, 12  two sub-tree, then its incoming (2) no left child  (4) no child the following C program of the	Questions  tof the program? and waffer was washanoof  (\(\chi\) = \(\text{i}\);  \(\text{i}\);  \(\text{i}\);  \(\text{i}\) = \(\text{i}\) = \(\text{i}\);  \(\text{i}\) = \(\text{i}
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SET-X Code-C

Question No.
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hestion No. 22 24 B 調 26. The minimum number of colors needed to color a graph having n (>3) A PERT network has 09 activities on its critical path. The standard deviation A graph with n vertices will definitely have a parallel edge or self-loop, if Two people : Amar and Akbar have picked 10 Mangoes, 15 Banana and 14 critical path is: the total number of edges are: vertices and 2 edges is:-A six sided unbiased dice with 04 Green faces and 04 Blue faces is rolled of each activity on the critical path is 03. The standard deviation of the  $\Xi$ of the experiment? Apples. What is the number of ways they can divide the fruits between 4 (3) Ø seven times. Which of the following combinations is the most likely outcome Less than (n-1) 03 Green faces and 04 Blue faces Greater than (n-1) 04 Green faces and 03 Blue faces 05 Green faces and 01 Blue face 05 Green faces and 02 Blue faces (2) 2 2 2 2100 Questions (2) Greater tham (n-1)/2 3 (4) Greater than n(n-1)/2 (3) 1638 27 4 4

SEI-X Code-C

Code-C SET-X

Question No. 27. 28. 29. 30. (1) u is adjacent to v but v is not adjacent to u A bag contains 2 Pens, 3 Pencils and 4 Sharpeners. Item are drawn from drawing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners probability of failing in X is 0.6. The probability of a student failing in both in X is 0.3 and that in Y is 0.2. Given that a student has failed in Y, the In a graph, if e = (u, v), then if means: the bag at random, one at a time, without replacement. The probability of shock absorbers are subjected to a quality test. The ones that pass the 3 the papers is: An examination consists of two papers; X and Y. The probability of failing 4 3 (2) e begins at u and ends at v 3 (1) 0.720 chosen shock absorber, which is found to be reliable, is made by Y is: Of Y's shock absorbers, 72% are reliable. The probability that a randomly quality test are considered reliable. Of X's shock absorbers, 96% are reliable. X and Y. X supplies 60% and Y supplies 40% of the shock absorbers. All Honda Automobile contracted to buy shock absorbers from two suppliers (1) 0.06 u is predecessor and v is successor 0.334 3/560 both (2) and (3) Questions (4) 0.18 (2) 0.50 (2) 0.667 (3) 1/1260(4) 1/2443

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Question No. Which consist	- ¥	37. If A ar	µа( <u>х</u> ) =	= (x)du	then w	(L) {C	(3) {(	38. How n	(1) 1		(3) 3	39. Why a neural	9 16 1	9 76 1 -	
Questions  Which of the following search is complete and optimal when h(n) consistent?  (1) A * search  (2) Best-first search	A * search  Depth-first search	If A and B are two fuzzy sets with the following membership functions:-	$\mu a(\chi) = \{0.2, 0.5, 0.6, 0.1, 0.9\}$	$\mu$ b( $\chi$ ) = {0.1, 0.5, 0.2, 0.7, 0.8}	then what will be the value of µa ∩ µb?	$\{0.2, 0.5, 0.6, 0.7, 0.9\}$ (2) $\{0.2, 0.5, 0.2, 0.1, 0.8\}$	{0.1, 0.5, 0.2, 0.1, 0.8}		How many types of polymerases are there in basic classification?	nany types of pol	nany types of po	How many types of polymerases are there in basic classification?  (1) 1 (2) 2  (3) 3 (4) 5  Why are researchers take more interest in linearly separable problems of neural network?	many types of polymerases are there in basic classification?  1 (2) 2  3 (4) 5  are researchers take more interest in linearly separable proble al network?  Because they are the only mathematical functions you can draw	many types of polymerases are there in basic classification?  1 (2) 2  3 (4) 5  are researchers take more interest in linearly separable problems of al network?  Because they are the only mathematical functions you can draw  Becuase they are the only class of problem that Preceptron can solve	many types of poly  1  3  are researchers ta al network?  Because they are tl Becuase they are t
Questions og search is co	4 2	zy sets with th	.1, 0.9}	.7, 0.8}	value of µa ∩	n 9} (2)	(-,	0.8) (4)	0.8) (4) lymerases are	0.8) (4) lymerases are (2)	0.8) (4) lymerases are (2) (4)	0.8) (4) lymerases are (2) (4)	0.8) (4) lymerases are (2) (4) take more into	0.8) (4) lymerases are (2) (4) ake more into the only math	0.8) (4) lymerases are (2): (4): ake more inte the only math the only class
stions  i is complete and op  (2) Best-first search	Best-first se Both Best-fi	he following	Personal substantial	Publish and		) µb?	ημь? {0.2, 0.5, 0.2	a () μb? (2) {0.2, 0.5, 0.2, 0.1, 0.8} (4) {0.1, 0.5, 0.6, 0.1, 0.8}	(0.2, 0.5, 0.5 (0.1, 0.5, 0.6 e there in ba	{0.2, 0.5, 0.5 {0.1, 0.5, 0.6 e there in ba	{0.2, 0.5, 0.5 {0.1, 0.5, 0.6 e there in ba 2	{0.2, 0.5, 0.5 {0.1, 0.5, 0.6 e there in ba 2 2 5 5	(0.2, 0.5, 0.5 (0.1, 0.5, 0.6 te there in ba 2 2 5 hematical fu	(0.2, 0.5, 0.5 (0.1, 0.5, 0.6 e there in ba 2 2 5 hematical fusion of problem	(0.2, 0.5, 0.5 (0.1, 0.5, 0.6 e there in ba 2 2 5 berest in line hematical fu
nd optimal v	Best-first search Both Best-first & Depth-first search	membership	megani	Market Ma			2, 0.1, 0.8}	2, 0.1, 0.8} 6, 0.1, 0.8}	2, 0.1, 0.8} 6, 0.1, 0.8} ssic classificat	2, 0.1, 0.8} 6, 0.1, 0.8} ssic classificat	2, 0.1, 0.8} 6, 0.1, 0.8} ssic classificat	2, 0.1, 0.8} 6, 0.1, 0.8} ssic classificat	2, 0.1, 0.8} 6, 0.1, 0.8} sic classificat arly separabl arry separabl	2, 0.1, 0.8} 6, 0.1, 0.8} ssic classificat ssic parabl arly separabl unctions you o	in basic classificate in linearly separable ical functions you coblem that Precept
when h(n) is	-first search	functions :-							tion?	tion?	tion?	tion?	tion?	tion? le problems can draw tron can sol	tion? le problems can draw

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Having multiple perceptrons can a satisfactorily this is because of the fac off a linear part of the space itself, and the Which of the following is correct?  (1) False – just having a single percel (2) False – perceptrons are mathema inseparable functions, no matter (3) True – perceptrons can do this but have to be explicitly hand-coded.  (4) True – this work always, and the classify even complex problems.  A binary tree T has 20 leaves. What having two chidren?  (1) 17 (2) 18  (3) 19 (4) 20  Let G = (V, E) be any connected und weight of the edges in E are positive a statements:  (i) Mininum Spanning Tree of G is alverted the shortest path between any two we which of the above statements is neces (1) (ii) only (2) (iii)  (3) Niether (i) nor (ii) (4) Bo	tiple perceptrons ca this is because of the rt of the space itself, au following is correct?  ust having a single per perceptrons are mathe the functions, no matter erceptrons can do this be explicitly hand-code this work always, and even complex problems e T has 20 leaves. Whidren?  (2) (4)  E) be any connected the edges in E are positive edges in E are positive path between any two above statements is no (2) (3) nor (ii) (4)
ause of the fac ause of the fac ace itself, and t correct? a single percel are mathema ns, no matter can do this bu hand-coded. llways, and th ex problems. leaves. What  (2) 18 (4) 20 connected und are positive a are positive a ments is nece (2) (ii)	ause of the fact that each per ace itself, and they can then accorrect?  a single perceptron is enough are mathematically incapal ns, no matter what you do can do this but are unable to hand-coded.  Ilways, and these multiple ex problems.  [2) 18  (4) 29  connected undirected edge-to are positive and distinct. Contact of G is always unique sen any two vertices of G is a ments is necessarily true?  (2) (ii) only  (4) Both (i) and (ii)
	ictually solve t that each per they can then chey can then chey can then chey can then che what you do t are unable to tare un

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47. 48. 49. Consider a hash table of size seven, with starting index zero, and a hash of the following is the contents of the table when the sequence 1, 3, 8, 10 is inserted into the table using closed hashing? Note that '\_' denotes an empty location in the table. function (3x + 4) mod 7. Assuming the hash table is initially empty, which 2 (1) 8, \_\_ \_ \_ \_ 10 (1) n-e+13 From a complete graph having n nodes and e edges, we can construct a 4 represent it in a Graph Structured Stack:-3 spanning tree by removing maximum \_\_\_\_edges: 10 and 10 In the following DAG, find out the number of required stacks in order to  $\Xi$ 1, 8, 10, \_\_\_\_\_3 n+e-1 1, 10, 8, \_\_\_ 3 ယ Questions (4) 4 (2) 2 (4) e-n-1 A SERVED AND BEAUTY OFF (S) I said to a should see Bulletin granting

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Question No. 50. 52. 53. What will be the Time Complexity to check if an edge exists between two vertices? of over 1000 is :-Using Relational Algebra the query that finds customers, who have a balance close to the ordering of data entries in some index. Which one of the A file is organized so that the ordering of data records is the same, as or (3) 0(1) (1) O (V\*V) (4) 3 29 (1) All phone numbers must include the area code constraint? (2)  $\sigma$  Customer\_name ( $\Pi$  balance > 1000 (Deposit)) 3 (1) Dense following is that Index? Which of the following can be addressed by enforcing a referential integrity  $\Pi$  Customer\_name ( $\sigma$  balance > 1000 (Deposit)) Sparse None of the above Both of the above Certain fields are required (such as the email address, or phone Information on the customer must be known before anything can be When entering an order quantity, the user must input a number and number) before the record is accepted not some text (i.e., 12 rather than 'a dozen" sold to that customer. Questions 2 (4) O(E) (2) O (V+E) 4 Clustered Unclustered

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No.
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59.
FROM instructor, teacher  WHERE instructor, ID = teacher, ID:
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r コル/しなる-EE-DEC-2022 (Computer Science) Code-C (77)

ne regular languages; which among we have been subtracted in the section sensitive of the (2) sinus deviation by each of the constraint by each of the constraint	2 are regular languages, which among we we be invested a languages, which among we we in the secure sought do less than a south the secure south to a less than a south to secure a south to show the secure south to a low the secure and to a low the secure and the secure and the secure at a secure at	2 are regular languages, which amount is a second of the s	2 are regular languages, which among a mong and A (n) denote respectively, the worst ne of an algorithm executed on an input always true?	2 are regular languages, which amounts the above continues of an algorithm executed on an input always true?  1.2 are regular languages, which amounts the above continues of an algorithm executed on an input always true?  1.2 are regular languages, which amounts the second of the s	If L1 and L2 are regular languages, which among the property of the exception?  (1) $L1-L2$ (2) $L1 \cup L2$ (3) $L1 \cap L2$ (4) All of the above.  Let $W(n)$ and A (n) denote respectively, the worst case and average case running time of an algorithm executed on an input of size n. Which of the following is always true?  (1) $A(n) = \Omega(W(n))$ (2) $A(n) = O(W(n))$ (3) $A(n) = O(W(n))$
	andest manne, course in nom jantemetar ender et anderstande form tenders e wheel part tenders e transming and tenders e dominated and the second as dominated and the second and the second and the second enderstand e	ve denote respectively, the worst case and average case algorithm executed on an input of size n. Which of the	ve- ) denote respectively, the worst case and algorithm executed on an input of size n.  true?	ves continued by the worst case and adjusted by true?  algorithm executed on an input of size not true?  algorithm executed on an input of size of the case and the case and the case of t	denote respectively, the worst case and algorithm executed on an input of size true?  The same and a boundary of the worst case and algorithm executed on an input of size true?  The same and a boundary of the worst case and algorithm executed on an input of size true?  The same and a boundary of the same and the sam

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Question No.		Questions	24.7 No. 104
		of the structure of the strategies.	
65.	An array n numbers is give well as the minimum of th the following is true about	An array n numbers is given, where n is an even number. The maximum as well as the minimum of these n numbers needs to be determined. Which of the following is true about the number of comparisons needed?	maximum aned. Which
	(1) At most 1.5n - 2 comparisons are needed (2) At least nlog n comparisons are needed	parisons are needed	
		At least 2n – c comparisons, for some constant, c are needed	eeded
	(4) None of the above	a series and rediger to the series of	
66.	Consider a hash table with	Consider a hash table with 9 slots. The hash function is $h(k) = k \mod 9$ . The	= k mod 9. T
	collisions are resolved by	collisions are resolved by chaining. The following 9 keys are inserted in the	nserted in ti
	chain lengths in the hash	chain lengths in the hash table, respectively, will be which of the following?	the followin
	(1) 3, 3 and 3		
	(2) 3, 0 and 1	The second secon	
	(3) 0, 1 and 3		
	(4) . 3, 2 and 0	The intermediate that piggs	
67.	The number of states in	The number of states in the minimal deterministic finite automaton	te automaton
	following?		
	(1) 2	(2) 3	
	(3) 4		

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Question No.  68. A cano S   Q   R  On inp	(1) (2) (3) (4)	69. YAC	(2)	<b>70.</b> For	E.>E F->F Whic	(1) (2)	3)
Questions nical set of items is given below > R  ut symbol < the set has, which	a reduce-reduce conflict but not a shift-reduce conflict neither a shift-reduce nor a reduce-reduce conflict a shift-reduce conflict and a reduce-reduce conflict a shift-reduce conflict but not a reduce-reduce conflict	YACC builds up, which of the following? Browlets related reached to a LALR parsing tables of Laurenset probables of the following?	SLR parsing table sale of the second dand of the second se	For the expression grammar	*FIF+EIF  - I id h of the following statement holds true?		+ and - have same precedence Precedence of + is higher *
	ce conflict conflict conflict conflict ce conflict ce conflict	centieres me e	chara ingilara Chara ingilara	Top 1	Ebased (6) (6)	The nomb .	(b) foreign and in one can
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Question No. · 71. Consider a network with five nodes, N1 to N5, as shown below The least test of a physical start and the gradients array counts quarter about 15 Questions E Code-C

N3: (7, 6, 0, 2, 6) distance vector at node, N3? both directions). After the next round updates. What will be the new that entry in their distance vectors. The cost of link N2-N3 reduces to 2 (in change in cost of a link will cause the two incident nodes to change only all nodes exchange their distance vectors with their respective neighbors. symmetric and the cost is identical in both the directions. In each round, nodes, N1 to N5, where the distance to itself is 0. Also, all links are N5: (4, 3, 6, 4, 0) N4: (8, 7, 2, 0, 4) N2: (1, 0, 6, 7, 3) N1: (0, 1, 7, 8, 4) have stabilized, the distance vectors at different nodes are as under: Then all nodes update the distance vectors. In between two rounds, any The network uses a Distance Vector Routing Proctocol, Once, the Route Each distance vector is the distance of best known path at that instance to

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(21)

3

(7, 2, 0, 6, 3)

(4) (3, 1, 6, 0, 2) (2) (3, 2, 0, 2, 5)

(1) (6, 4, 1, 0, 2)

75.	74.	73.	72.	Question
Which of the following is used in wireless LAN?  (1) time divison multiplexing (2) space division multiplexing (3) orthogonal frequency division multiplexing (4) none of the mentioned		Consider a source computer (S) transmitting a file of size $10^6$ bits to a destination computer (D) over a network of two routers (R <sub>1</sub> and R <sub>2</sub> ) and three links (L <sub>1</sub> , L <sub>2</sub> , and L <sub>3</sub> ). L <sub>1</sub> connects S to R1; L <sub>2</sub> connects R <sub>1</sub> to R <sub>2</sub> ; and L <sub>3</sub> connects R <sub>2</sub> to D. Let each link be of length $100$ km. Assume signals travel over each link at a speed of $10^8$ meters per second. Assume that the link bandwidth on each link is $1$ Mbps. Let the file be broken down into $1000$ packets each of size $1000$ bits. Find the total sum of transmission and propagation delays in transmitting the file from S to D?	Host A sends a UDP datagram containing 8880 bytes of user data to host B over an Ethernet LAN. Ethernet frames may carry data up to 1500 bytes over an Ethernet LAN. Ethernet frames may carry data up to 1500 bytes over an Ethernet LAN. Ethernet frames may carry data up to 1500 bytes of IP (i.e. MTU = 1500 bytes). Size of UDP header is 8 bytes and size of IP header is 20 bytes. There is no option field in IP header. How may total number of IP fragments will be transmitted and what will be the contents of offset field in the last fragment?  (1) 7 and 8880  (2) 7 and 1110  (3) 5 and 6400  (4) 8 and 6625	Questions

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		77.	-4.	76.	Question No.
<ol> <li>That the identity be authenticated</li> <li>That the authentication be portable</li> <li>That you establish an identity</li> <li>All of the above</li> </ol>	<ol> <li>60 characters/sec, 146 characters/sec</li> <li>80 characters/sec, 233 characters/sec</li> <li>100 characters/sec, 136 characters/sec</li> <li>100 characters/sec, 153 characters/sec</li> </ol>	A serial transmission T1 uses 8 information bits, 2 start bits, 1 stop bit and 1 parity bit for each character. A synchronous transmission T2 uses 3 eight bit sync characters followed by 30 eight bit information characters. If the bit rate is 1200 bits/second in both cases. what are the transfer rates of T1 and T2?	(iii) TCP (iv) POP3 (1) (i) and (ii) only (2) (ii) and (iv) only (3) (ii) and (iii) only (4) (iv) only	Which of the following is/are example(s) of state-full application layer protocols?  (i) HTTP  (ii) FTP	Questions

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(23)

82.		81.	80.	79.	Question No.
Aging registers' are:  (1) Registers which keep track of when the program was last accessed  (2) Counters to keep track of last accessed instruction  (3) Counters to keep track of the latest data structures referred  (4) Counters which indicate how long ago their associated pages have	$\begin{array}{l} A B C + A B C + A B C + A B C + A B C + A B C \\ (1) (A + B + C) (A + \overline{B} + C) (A + \overline{B} + \overline{C}) \\ (2) (\overline{A} + \overline{B} + \overline{C}) (A + \overline{B} + C) (A + \overline{B} + C) \\ (3) (\overline{A} + \overline{B} + \overline{C}) (\underline{A} + B + \overline{C}) (\overline{A} + \overline{B} + C) \\ (4) (A + B + C) (\overline{A} + B + \overline{C}) (A + \overline{B} + C) \end{array}$	Convert the following SOP expression to an equivalent POS expression:	Which of the following language preferred for IoT smallytics?  (1) Python (2) DHTML  (3) PHP (4) Java Script	Which of the following is the Virtual machine conversion cloud?  (1) Amazon Cloud Watch  (2) AbiCloud  (3) BMC Cloud Computing Initiative  (4) None of the above	Questions

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Question
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	(1) 256	program will be:	is executed in this pipelin instruction and its branch execution of this program	for FI, DI, FO, EI and WO There are intermediate st each buffer is 1 ns. A prog	86. Consider an instruction prediction: Fetch Instruction (FO), Execute Instruction	(3) (11001) <sub>2</sub>	85. In signed-magnitude binary di is (10011) <sub>2</sub> then the result is:	(4) Non restoring algorithm	(1) Booth alogrithm	84. The most efficient method in numbers is:	3	(1) Gated JK - latch (2) Gated D.	83. Which circuit is generated	No.
(4) 165	(2) 128		is executed in this pipelined processor. Instruction $I_4$ is the only branch instruction and its branch target is $I_9$ . If the branch is taken during the execution of this program, then the time (in ns) needed to complete the	for FI, DI, FO, EI and WO are 5 ns, 7ns, 10 ns, 8 ns and 6 ns, respectively. There are intermediate storage buffers after each stage and the delay of each buffer is 1 ns. A program consisting of 12 instructions $I_1, I_2, I_3, \dots, I_n$	Consider an instruction pipeline with five stages without any branch prediction: Fetch Instruction (FI) Decode Instruction (DI). Fetch Operand (FO), Execute Instruction (EI) and Write Operand (WO). The stage delays	(2) (10100) <sub>2</sub> (4) (01100) <sub>2</sub>	visor	Bit pair recording of multipliers  Non restoring algorithm		The most efficient method followed by computers to multiply two unsigned numbers is : -	(4) Gated T- latch	number of inputs?	Which circuit is generated from D-flip flop due to addition of an inverter	Questions

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Question No. 87. 88. 89. How many 3-to-8 line decoders, with an enable input, are needed to construct (1) 32 at 6-to-64 line decoder, without using any other logic gates? Which one of the following circuits is not equivalent to a 2-input XNOR (2) 16 3  $\Xi$ 4 (exclusive NOR) gate? (4) 3 2 (1) Static memory Which memory is difficult to interface with processor? 2 3 (4) None of these Dynamic Memory ROM go openiques ed bewolfethedemonolities a medit Questions serve budges is that y bartest surs A distribution : Fetch Instruction (F) arvi yaand dhataysin basaa d SAND LOSTORIDE SPIRE LITTURE Charles of the little of the little of execution of this program mostorateni un antisanoli mil 1001 II, then the 1641 Carted 655-1915p bushing any po-(TO (01101) (3) (11001) 31

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			Selector.			10	d Morant	-	1-,	-71	change	20.	90.	No.	Code
(3) 5	(2) 3	(1) 2 (1) 2 (1) The state and light light statement of the statement of th		6 6 ¢	Sundange proceeding mass better 24 450	evaluate this expression?	in memory, what will be the minimum number of registers needed to	produce result only in a register. If no intermediate results can be stored	by the machine, only when the operands are in registers. The instructions	memory. The binary operators used in this expression tree can be evaluated	and store instructions. The variables a, b, c, d and e initially stored in	store architecture, in which memory can be accessed only through load	Consider evaluating the following expression tree on a machine with load-	Questions	Со
							eded to	stored	uctions	aluated	ored in	gh load	th load-	1	SET-X

98.	92.	91.
Which of the following is not a major  (1) Data integrity constant  (2) Availability of technically qualidevelopment  development  (3) Frequency of record updates  (4) Response time required	Which method recommends that very frequent system bulds she carried out with automated testing to discover software problems?  (1) Agile method  (2) Large systems method  (3) Parallel compilation method  (4) All of the above	Which of the following is the System Development?  (1) It is development of SRS of a system.  (2) Process of successive changes of system from requirement  (3) Both (1) and (2)  (4) None of the above
Which of the following is not a major design consideration of the system?  (1) Data integrity constant  (2) Availability of technically qualified personal to carry out design and development  (3) Frequency of record updates	Which method recommends that very frequent system bulds should be carried out with automated testing to discover software problems?  (1) Agile method (2) Large systems method (3) Parallel compilation method (4) All of the above	The of the following is the System Development? The state of the following is the System Development? The state of the sta

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Question	
No.	Questions
94.	What is the main difference between program testing and system testing?  (1) System testing is tough and program testing is easy  (2) Program testing is more than the system testing is easy
	<ul> <li>(3) System testing focuses on testing the interfaces between programs,</li> <li>program testing focuses on individual programs.</li> <li>(4) None of the above</li> </ul>
95.	is the major d
sher in	<ol> <li>It requires highly skilled developers/designers</li> <li>It increases the component reusability</li> </ol>
	(3) It necessitates customers feedbacks
	(4) Both (a) and (b)
96.	Which of the following models doesn't necessitate defining requirements
	at the earliest in the lifecycle?
	(2) RAD and Waterfall
MONTH IN	(3) Prototyping and Waterfall
97.	Which of the following is the main intent of project metrices?
	(1) To minimize the development schedule
	(2) To evaluate the ongoing project's quality on a daily basis
	(3) Both (1) and (2)
	(4) None of the above

Which of the following does not co but offers a potential estimation models  (1) Empirical estimation models (2) Decomposition techniques (3) Automated estimation tools (4) Both emprical estimation m  In CMM, the life-cycle activities and test are described in which o (1) Software Subcontract Manag (2) Software Quality Assurance (3) Software Product Engineeric (4) Software Product Engineeric (4) Software Product Engineeric (5) Change management	Questions  of the following does not complement the decompoers a potential estimation approach for their impenpirical estimation models  ecomposition techniques  utomated estimation tools  of hemprical estimation models and automated estimation tools  of the life-cycle activities of requirements analyst are described in which of the following?  of tware Quality Assurance  of tware Quality Management  of the following is an incorrect activity for the management  ange management
	stions  complement the decomposition to approach for their impersonal approach and automated estimations of the following?  agement other analysis, des of the following?  Personal approach subsection of the following?  incorrect activity for the configuration of the



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(Total No. of printed pages: 31)

(DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

## (PHD/URS-EE-DECEMBER-2022)



## COMPUTER SCIENCE

Sr.	No		_	_	
		0	0	5	2

Fime: 1¼ Hours	Total Quest	tions: 100	Max. Marks: 100
Roll No	(in figure)		(in words)
Name : Mother's Name :			me:nination:
(Signature of the candid	late)	(Sig	nature of the Invigilator)

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All questions are compulsory.

The candidates must return the Question book-let as well as OMR 2. answer-sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.

Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by

Question Booklet along-with answer key of all the A,B,C and D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the Unversity website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case will considered.

The candidate MUST NOT do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question book-let itself. Answers

MUST NOT be ticked in the Question book-let.

There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer 6. in OMR Answer-Sheet will be treated as incorrect answer.

Use only Black or Blue BALL POINT PEN of good quality in the OMR Answer-7.

BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.



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SET-X Code-D

4	ထု	Who	No.
The most efficient method followed by computers to multiply two unsigned numbers is:  (1) Booth alogrithm  (2) Restoring algorithm  (3) Bit pair recording of multipliers  (4) Non restoring algorithm	Which circuit is generated from D-flip flop due to addition of an inverter by causing reduction in the number of inputs?  (1) Gated JK - latch  (2) Gated D- latch  (3) Gated SR- latch  (4) Gated T- latch	'Aging registers' are:-  (1) Registers which keep track of when the program was last acessed  (2) Counters to keep track of last accessed instruction  (3) Counters to keep track of the latest data structures referred  (4) Counters which indicate how long ago their associated pages have been referenced	Convert the following SOP expression to an equivalent POS expression: $ABC + A\overline{B}\overline{C} + A\overline{B}C + AB\overline{C} + AB\overline{C} + \overline{A}\overline{B}C$ $(1) (A + B + C)(A + \overline{B} + C)(A + \overline{B} + \overline{C})$ $(2) (\overline{A} + \overline{B} + \overline{C})(A + \overline{B} + C)(A + \overline{B} + C)$ $(3) (\overline{A} + \overline{B} + \overline{C})(\underline{A} + B + \overline{C})(\overline{A} + B + C)$ $(4) (A + B + C)(\overline{A} + B + \overline{C})(A + \overline{B} + C)$

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PHD/URS-EE-DEC-2022 (Computer Science) Code-D (2)

PHD/URS-EE-DEC-2022 (Computer Science) Code-D
(3)

Question No. J-9000 10. 9. .00 3 Ξ evaluate this expression? in memory, what will be the minimum number of registers needed to produce result only in a register. If no intermediate results can be stored by the machine, only when the operands are in registers. The instructions and store instructions. The variables a, b, c, d and e initially stored in store architecture, in which memory can be accessed only through load Consider evaluating the following expression tree on a machine with load memory. The binary operators used in this expression tree can be evaluated (1) Static memory  $\Xi$ Which memory is difficult to interface with processor? 3 Which one of the following circuits is not equivalent to a 2-input XNOR 4 19 (exclusive NOR) gate? 2 5 Dynamic Memory (e) Questions (2) 3 (4) 7 (4) None of these (2) ROM Code-D

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<b>#</b>	F	*	<b>5</b>	F	No
Which of the following is called as transposition table?  (1) Next value in the search  (2) Hash table of next seen positions  (3) Hash table of previously seen positions  (4) None of the above	Which search is equal to MiniMan can't influence the final decision?  (1) Breadth-first search (2)  (3) Depth-first-search (4)	What is the heuristic function of greedy best-first search?  (1) f(n)! = h(n) (2) f(n) = h(n)  (3) f(n) < h(n) (4) f(n) > h(n)	Which of the following search us (1) Best-first search (2) Depth-first search (3) Recursive best-first search (4) None of the mentioned	The values of the set membership is repre  (1) Discrete Set  (2) Probabilities  (3) Degree of truth  (4) Both Degree of truth & Probabilities	4
ed as transposition table?  positions  seen positions	Which search is equal to MiniMax search but eliminates the branches that can't influence the final decision?  (1) Breadth-first search (2) Alpha-beta pruning (3) Depth-first-search (4) None of the above	n of greedy best-first search? (2) f(n) = h(n) (4) f(n) > h(n)	Which of the following search uses only the linear space for searching?  (1) Best-first search  (2) Depth-first search  (3) Recursive best-first search  (4) None of the mentioned	The values of the set membership is represented by which of the following?  (1) Discrete Set (2) Probabilities (3) Degree of truth (4) Both Degree of truth & Probabilities	Questions





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SET-X

uestion No.	Questions
16.	Which of the following search is complete and optimal when h(n) is consistent?
T	(1) A * search (2) Best-first search
	(3) Depth-first search (4) Both Best-first & Depth-first search
17.	If A and B are two fuzzy sets with the following membership functions:-
	$\mu a(\chi) = \{0.2, 0.5, 0.6, 0.1, 0.9\}$
	$\mu b(\chi) = \{0.1, 0.5, 0.2, 0.7, 0.8\}$
=	then what will be the value of μa Π μb?
DESIGN OF	$(1)  \{0.2, 0.5, 0.6, 0.7, 0.9\} \qquad (2)  \{0.2, 0.5, 0.2, 0.1, 0.8\}$
	(3) {0.1, 0.5, 0.2, 0.1, 0.8} (4) {0.1, 0.5, 0.6, 0.1, 0.8}
18.	How many types of polymerases are there in basic classification?
最好	(2) 2 m
	(3) 3
19.	Why are researchers take more interest in linearly separable problems of neural network?
	(1) Because they are the only mathematical functions you can draw
De John	(2) Becuase they are the only class of problem that Preceptron can solve successfully
	(3) Because they are the only mathematical functions that are continue
	(4) Because they are the only class of problem that network can solve
	successfuly

Question	Directions
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20.	Having multiple perceptrons can actually solve the XOR problem
	satisfactorily - this is because of the fact that each perceptron can partition
	off a linear part of the space itself, and they can then combine their results.
	Which of the following is correct?
	1

- (1) False just having a single perceptron is enough
- 29 False – perceptrons are mathematically incapable of solving linearly inseparable functions, no matter what you do
- (3) True - perceptrons can do this but are unable to learn to do it - they have to be explicitly hand-coded.
- **(4)** True - this work always, and these multiple perceptrons learn to classify even complex problems.
- Let < M > be the encoding of a Turing machine as a string over  $\sum = \{0, 1\}$ . Let  $L = \{ < M > | M \text{ is Turing machine that accepts a string of length 2018} \}$

21.

- (1) decidable and recursively enumerable
- (2) decidable but not recursively enumerable
- 3 Un-decidable but recursively enumerable
- 4 Un-decidable and not recursively enumerable
- 22. of Hanoi problem with n discs will be, which of the following:-The recurrence relation capturing the optimal execution time of the towers
- (1) T(n) = 2T(n-1)+1
- 29
- T(n) = 2T(n-2) + 2
- T(n) = 2T(n-1) + n

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- T(n) = 2T (n/2) + 1
- 4

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Code-D SET-X

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the de appropriate seithe September	(4) None of the above	(3) At least 2n - c comparisons, for some constant, c are needed	(2) At least nlog <sub>2</sub> n comparisons are needed	(1) At most 1.5n - 2 comparisons are needed	the following is true about the number of comparisons needed?	well as the minimum of these n numbers needs to be determined. Which of	An array n numbers is given, where n is an even number. The maximum as	$(4)  A(n) = \Theta (W(n))$	(3) $A(n) = o(W(n))$	(2) $A(n) = O(W(n))$	(1) $A(n) = \Omega$ (W(n))	following is always true?	running time of an algorithm executed on an input of size n. Which of the	Let $W(n)$ and A $(n)$ denote respectively, the worst case and average	(4) All of the above	(3) L1 \(\Omega \text{L2}\)	(2) L1 U L2	(1) L1-L2	exception?	If L1 and L2 are regular languages, which among the	Questions
		, c are needed			ns needed?	determined. Which of	ber. The maximum as					11/15/24	f size n. Which of the	ase and average case				Total Control		the following is an	Spinore Company

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uestions	
	Manual III

Consider a hash table with 9 slots. The hash function is h (k) = k mod 9. The collisions are resolved by chaining. The following 9 keys are inserted in the order: 5, 28, 19, 15, 20, 33, 12, 17, 10. The maximum, minimum, and average chain lengths in the hash table, respectively, will be which of the following?  (1) 3, 3 and 3  (2) 3, 0 and 1  (3) 0, 1 and 3  (4) 3, 2 and 0  The number of states in the minimal deterministic finite automaton corresponding to the regular expression (0 + 1)* (10) will be which of the following?  (1) 2  (2) 3  (3) 4  (4) 5  A canonical set of items is given below:  S → L > R  On input symbol < the set has, which of the following?  (1) a reduce-reduce conflict but not a shift-reduce conflict  (2) neither a shift-reduce conflict and a reduce-reduce conflict  (3) a shift-reduce conflict but not a reduce-reduce conflict  (4) a shift-reduce conflict but not a reduce-reduce conflict	* 3					27.				2	-			ا حمد دار	2.000	- 10 24 44
chaining. The hash function is chaining. The following 9 keys, 12, 17, 10. The maximum, min table, respectively, will be what the minimal determinist in the minim	Consider a hash table wit	order: 5, 28, 19, 15, 20, 33 chain lengths in the hash		0, 1 and 3	3, 2 and 0	The number of states	following?		(3) 4		Q →R	On input symbol < the				
	h 9 slots. The hash function is	, 12, 17, 10. The maximum, mir , table, respectively, will be wh			THE REPORT OF SOME STREET, THE PARTY OF SOME	in the minimal determinist		<b>69</b>	en -			set has, which of the tonowing	oninci but not a sumt-reduce	duce nor a reduce-reduce conf	uffict and a reduce-reduce con	affict but not a reduce-reduce

2E1-X Code-D

SET-X Code-D

3 X		TOURGURION AN	<b>30.</b>	¥	Question	
<ol> <li>It is development of SRS of a system</li> <li>Process of successive changes of system from new and changed requirement</li> <li>Both (1) and (2)</li> <li>None of the above</li> <li>Which method recommends that very frequent system bulds should be carried out with automated testing to discover software problems?</li> <li>Agile method</li> </ol>	(3) + and - have same precedence (4) Precedence of + is higher * (5) (4) Precedence of + is higher * (6) (7) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9	F->F - I id  Which of the following statement holds true?  (1) Precedence of - is higher *  (2) Precedence of * is hihger +	For the expression grammar E->E*FIF+EIF	YACC builds up, which of the following?  (1) LALR parsing table  (2) SLR parsing table  (3) Canonical LR parsing table  (4) None of these	Questions	
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SET-X Code-D

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36.	85		88	Question
Which of the following models doesn't necessitate defining requirements at the earliest in the lifecycle?  (1) Spiral and Prototyping (2) RAD and Waterfall (3) Prototyping and Waterfall (4) Spiral and RAD	Which of the following is the major drawback designers  (2) It increases the component reusability  (3) It necessitates customers feedbacks  (4) Both (a) and (b)	<ul> <li>What is the main difference between program testing and system results.</li> <li>(1) System testing is tough and program testing is easy</li> <li>(2) Program testing is more comprehensive than system testing</li> <li>(3) System testing focuses on testing the interfaces between programs, program testing focuses on individual programs.</li> <li>(4) None of the above</li> </ul>	Which of the following is not a major design consideration of the system?  (1) Data integrity constant  (2) Availability of technically qualified personal to carry out design and development  (3) Frequency of record updates  (4) Response time required	Questions

X-130 Code-O

SET-X Code-D

Question  Question  37. Which of the following is the main intent of project metrices?  (1) To minimize the development schedule
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(11)

Code-D

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<ul> <li>Using Relational Algebra the query that finds customers, who have a balance of over 1000 is:</li> <li>(1) Π Customer_name (σ balance &gt; 1000 (Deposit))</li> <li>(2) σ Customer_name (Π balance &gt; 1000 (Deposit))</li> <li>(3) Both of the above</li> <li>(4) None of the above</li> </ul>	
II Customer_name (σ balance > 1000 (Deposit)) σ Customer_name (Π balance > 1000 (Deposit)) Both of the above None of the above	
G Customer_name (Π balance > 1000 (Deposit))  Both of the above  None of the above	
Both of the above	
None of the above of the following the deposits	
	Which of the following can be addressed by enforcing a referer constraint?
All phone numbers must include the area code	
All phone numbers must include the area code  Certain fields are required (such as the email address, number) before the record is accepted	
	Certain fields are required (such as the email address, number) before the record is accepted  Information on the customer must be known before anyth sold to that customer.

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SET-X Code-D

47.	da es ar	46.	45.	br <b>44.</b>	Question No.
Which of the following is known as minimal super key?  (1) Primary Key  (2) Candidate Key  (3) Foreign Key  (4) Unique Key	(1) 1 NF (2) 2 NF (3) 3 NF (4) 4 NF	Which normal form deals with multivalued dependency?	Which normalization form is based on the transitive dependency?  (1) 1 NF  (2) 2 NF  (3) 3 NF  (4) 4 NF	Consider the following transactions with data items P and Q initialized to zero:  T1: read (P); read (Q); if P = 0 then Q:= Q+1; T2: read (P); read (P); if Q = 0 then P:= P+1; Write (P); Any non-serial interleaving of T1 and T2 for concurrent execution leads to: (1) A serializable schedule (2) A conflict serializable schedule (3) A schedule for which a precedence graph cannot be drawn (4) A schedule that is not conflict serializable	Questions
r key? ey	The Madrie 1	ndency?	ransitive dependency?	concurrent execution leads	Management Comment of the Comment of

No.	Questions
48. Which of the n?	Which of the following will be the maximum children of a B-tree of order n?  (1) n/9 (2) n+1
	ngl pading
49. Which of the	
SELECT name, course_id	
FROM inst	FROM instructor, teacher
WHERE in	WHERE instructor, ID = teacher_ID;
(1) select n (2) select	select name, course_id from instructor natural join teacher, instructor select name, course_id from teacher, instructor
12	instructor_id = course_id; a don's na shahadha A
(3) select	select name, course_id from instructor
(4) select	select course_id from instructor join teacher
50. NATURAI (1) Comb	NATURAL JOIN can also be termed as  (1) Combination of Union and Cartesian Product  (2) Combination of Selection and Cartesian Product
(3) Comb (4) Comb	Combination of Projection and Cartesian Product Combination of Union and Projection
51. Which one using stace	Which one of the following permutations can be obtained as the output using stack assuming that the input is the sequence 1, 2, 3, 4, 5 in that

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Following is C like pseudo code of a function that takes a Queue Q as an argument, and uses a stack S to do processing.  void fun (Queue *Q)  {     stack S; // Creates an empty stack S  // Run while Q is not empty  while (!isEmpty(Q))  {     // deQueue an item from Q and push the dequeued item to S     push (&S, deQueue (Q));  }  // Run while Stack S is not empty  while (!isEmpty(&S))  {     // Pop an item from S and enqueue the popped item to Q     enQueue(Q, pop (&S)); }
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> Code-D SET-X

SE1-X

Consider the following function implemented in C: void goto (int x, int y) What will be the output when you compile and run the following C code? (1) 0, 0 The output of invoking goto (1, 1) will be which of the following:-#include<stdio.h> int main () (3) 3 (3) x = 0; y = \*ptr;ant \*ptr; static char \*s[] = {"black", "white", "pink", "violet"}; print f ("%d, %d", x, y); printf("%s", \*\*p+1); p = ptr;char \*\* ptr[] =  $\{s+3, s+2, s+1, s\}$ , \*\*\*p; \*ptr = 1; ptr = & x; return 0; ite mk हा प्राप्त किन्तुकृत अवेर अध्यक्षक विस्ता है सक्ष्ये ताको कड कुक्षेत्री Carlo sa tem from Gara Gara 600-p STREETS IN CITED OF STREETS HEREIN STREETS Questions . (2) ack (2) 1, 0 (4) 1, 1 (4) let Removes the protections to Mesperder Querro ann Ha Appropriate a Character a Ch MERITED AND HONE greaters of 6. (4) Makes Quappy

#include <stdio.h> int main ()  int i = 4, j = 8;     printf("%d, %d, %d\n", i   j&amp;j   i, i   j&amp;j</stdio.h>

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SET-X

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61.		60.	14 Day	59.	58.	Question
A multithreaded program P executes with x number of integrals and number of locks for ensuring mutual exclusion while operating on shared number of locks for ensuring mutual exclusion while operating on shared number of locks for ensuring mutual exclusion while operating on shared memory locations. All locks in the program are non-re-entrant, i.e., if a memory locations. All locks in the program are non-re-entrant, i.e., if a memory locations. All locks in the program are non-re-entrant, i.e., if a memory location it cannot re-acquire lock l without releasing it. thread is unable to acquire a lock, it blocks until the lock becomes available. The minimum value of x and the minimum value of y together for which execution of P can result in a deadlock are:  (1) x = 1, y = 2  (2) x = 1, y = 1  (3) x = 2, y = 1  (4) x = 2, y = 2	What is the return value of the function join when it is called as join (345, 10)?  (1) 96  (2) 48  (3) 24  (4) 12	Consider the following recursive C function that takes two arguments of unsigned int join (unsigned int n, unsigned int r) {  if (n > 0) return ((n% r) + join(n/r, r) );  else return 0;	(4) void pass(*fptr){} a serve das over som (100) a recentor in the contract of the contract o	argument	In the array implementation of circular queue, which of the following operation takes linear time in the worst case?  (1) To empty a queue (2) Deletion (3) Insertion (4) None	Questions

Question No.			Questions
62.	An Operat	ing System u	An Operating System uses Shortest Remaining Time first (SRTF) process scheduling algorithm. Consider the arrival times and execution times for
	the followi	the following processes:-	
	Process	<b>Execution Time</b>	n Time Arrival Time
	PI	20	0.0
	P2	25	21. 10 sq. 15 of the 1 18
	В	10	8
D.T. Berger	P4 desiron	on in 15	M - 140 - 245 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
le in	What is th	e total wait	What is the total waiting time for process P2?
No array district	(1) 55	8	(2) 40
Local S	(3) 15	ment bayma	(4) 05
63.	Consider : of page re following Out (FIFC	a main memo ferences: 3, is true with )) and Least	Consider a main memory with five page frames and the following sequence of page references: 3, 8, 2, 3, 9, 1, 6, 3, 8, 9, 3, 6, 2, 1, 3. Which one of the following is true with respect to page replacement policies First In First Out (FIFO) and Least Recently Used (LRU)?
	(1) LRU	incurs 2 mo	LRU incurs 2 more page faults than FIFO
	(2) Both	incur the sa	Both incur the same number of page faults
	(3) FIF(	) incurs 1 mc	FIFO incurs 1 more page faults than LRU
	(4) FIFO	) incurs 2 mc	FIFO incurs 2 more page faults than LRU

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Which of the following is shared by threads of a process?

(2) heap but not global variables

(3) both heap and global variables

global variables but not heap

(1) neither global variables nor heap

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Code-D

Question	Questions	No
65.	Whenever a process need I/O to or from a disk, it issues:  (1) a system call to the operating system	E
	(2) a system call to the CPU and relationed sessions	
	(3) a system call to the kernel	k
	(4) a system call to the specific API	
66.	A computer has twenty physical page frames which contain pages numbered	number
	101 through 120. Now, a program accesses the pages numbered 1, 2,	d 1, 2,
	100 in that order, and repeats the access sequence thrice. Which one of	hich one
	the following page replacement policies experiences the same number of	number
	page faults as the optimal page replacement policy for this program?	gram?
Sign	01.00	100
M IN M	(2)	
	(3) Last-in-first-out	
		West State
67.	Thread pools help in :	
	(1) servicing multiple requests using one thread	
	(2) servicing a single request using multiple threads from the pool	e pool
	(3) faster servicing of requests with an existing threads rather than	ather tl
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Question No.	68. Co	HO	10	T dgstar	Đ	(Z)	(3) (4)	69. W	Day a sive	(2)	(3)	(4)	.00	C)		(2)	(3)
	nsider a le sizes i	) H1	10 K 4 KB	id a succ				hat are t	(1) Log au				hat are t	(33			
	Consider a swapping system in which memory consists of the following	HO H1 H2 H3	20 KB	and a successive segment request of 12 KB, following sentences is/are true?	First fit algorithm allocates H2, H0, H3 for the mentioned request	Best fit algorithm allocates H2, H0, H3 for the mentioned request	First fit algorithm allocates H2, H6, H7 for the mentioned request Worst fit algorithm allocates H2, H3, H6 for the mentioned request	What are the characteristics of Host based IDS?	Log are analyzed to detect tails of intrusion	The host operating system logs in the audit information	Logs includes logins, file opens, and program executions	All of the above	What are the characteristics of stack based IDS?	It is programmed to interpret a certain series of packets	It models the normal usage of the network as a noise characterization	They are integrated closely with the TCP/IP stack watch packets	
Q <sub>II</sub>	g system	H3	18 KB	ment rec s/are tru	ım alloca	m allocat	im alloca thm alloc	teristics	d to dete	ing syste	gins, file		teristics	ed to inte	rmal usa	ated clos	
Questions	in whic	H4	7KB	luest of 12 Fe?	tes H2, I	es H2, H	tes H2, I ates H2,	of Host b	ct tails o	m logs in	opens, a		of stack l	rpret a c	ge of the	ely with (	
	n memor	H5	9 KB		10, H3 fc	[0, H3 fo	16, H7 fo H3, H6	ased ID	fintrusio	the aud	nd progr		pased ID	ertain se	network	he TCP/	
	y consis	H6	12 KB	0 KB, 9	r the me	r the me	r the me for the m	Si		it inform	am exect	757	S?	eries of p	as a nois	IP stack	
	s of the	H7	15 KB	10 KB, 9 KB . Which of the	ntioned 1	ntioned r	ntioned 1 entioned	2		ation	ıtions			ackets	e charac	watch pa	
TO LIFE IN CO.	followin <sub>i</sub>			ich of th	request	equest	request						7, 6		terizatio	ckets	

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74	73.	72.	Question No.
If the address of A [1][1] and A [2] [1] are 1000 and 1010 respectively and each element occupies 2 bytes then the array has been stored in which order?  (1) column major (2) row major (3) matrix major (4) none of these	Let T be a binary search tree with 15 nodes. The minimum and maximum possible heights of T are: (Please note that the height of a tree with a single node is 0)  (1) 5 and 14 respectively  (2) 14 and 5 respectively  (3) 3 and 14 respectively  (4) 14 and 3 respectively	Let $G = (V, E)$ be any connected under the following weight of the edges in $E$ are positive and distinct. Consider the following statements:  (i) Mininum Spanning Tree of $G$ is always unique  (ii) Shortest path between any two vertices of $G$ is always unique.  Which of the above statements is necessarily true?  (1) (i) only  (2) (ii) only  (3) Niether (i) nor (ii)  (4) Both (i) and (ii)	A binary tree T has 20 leaves. What will be the number of nodes in T having two chidren?  (1) 17

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Question No. 75. Questions Code-D

(1) 3 The number of distinct binary trees with 3 nodes, which when traversed in post order gives the sequence A, B, C is:-(2) 9

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3

OT

(4) 7

The height of a tree is the length of the longest root-to-leaf path in it. The

OKejel. 1 77. (1) 63 and 6 repsectively empty location in the table. inserted into the table using closed hashing? Note that '\_\_' denotes an of the following is the contents of the table when the sequence 1, 3, 8, 10 is Consider a hash table of size seven, with starting index zero, and a hash (4) 31 and 5 respectively 3 maximum and minimum number of nodes in a binary tree of height 5 are:function  $(3x + 4) \mod 7$ . Assuming the hash table is initially empty, which (2) 64 and 5 respectively 32 and 6 respectively

4 1, 10, 8, \_\_\_\_\_ 3

3

(2) 1, 8, 10, \_\_\_\_ 3

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(tr) 81 (14.)

Code-D

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<b>8</b>		3	at a	#	No.
What will be the Time vertices? (1) O (V*V) (3) O (1)	(a) 1 (b) 3 (c) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d	In the following DAG, represent it in a Graph	(3) n+e-1 (4) e-n-1	From a complete graph having n nod spanning tree by removing maximum  (1) n-e+1  (2) e-n+1	
What will be the Time Complexity to check if an edge exists between two vertices?  (1) O (V*V)  (2) O (V+E)  (3) O (1)  (4) O (E)	(4) (2) 4 2	In the following DAG, find out the number of required stacks in order to represent it in a Graph Structured Stack:		From a complete graph having n nodes and e edges, we can construct a spanning tree by removing maximumedges:  (1) n-e+1  (2) e-n+1	Questions
dge exists betwe	Apprending of land (\$)  (\$) A the Apprendiction of \$ (\$)  (\$) A thought a performance of the county of \$ (\$)  (\$) A thought a performance of the county of \$ (\$)  (\$) A thought a performance of the county of \$ (\$)  (\$) A thought a performance of the county of \$ (\$)  (\$) A thought a performance of the county of	ired stacks in o	Treximities of the control of the co	es, we can const	1470

Ruestion No.  81. Which of the following is equal to the logical e (X^Y)→(Z'^X)→(X≡I)?  (1) Contradiction (2) Valid (3) First Order Logic (4) None of t  82. The minimum number of colors needed to e vertices and 2 edges is: (1) 1 (2) 2 (3) 3 (4) 4  83. A graph with n vertices will definitely have a the total number of edges are: (1) Less than (n-1) (2) Greater than (n-1)/2 (3) Greater than n(n-1)/2  84. A PERT network has 09 activities on its critical of each activity on the critical path is 03. The critical path is: (1) 03 (2) 09	Which of the following is equal to the $(X^{\wedge}Y) \rightarrow (Z'^{\wedge}X) \rightarrow (X\equiv 1)$ ?  (1) Contradiction (2) .M.  (3) First Order Logic (4) N.  (3) First Order Logic (4) N.  (1) 1 (2) 2  (2) 3 3 (4) 4  A graph with n vertices will definitely the total number of edges are:  (1) Less than (n-1)  (2) Greater than (n-1)/2  (3) Greater than n(n-1)/2  A PERT network has 09 activities on its of each activity on the critical path is critical path is:  (1) 03 (2) 05
Which of the following is equal to the logical e (X^Y)→(Z'^X)→(X≡1)? (1) Contradiction (2) Nalid (3) First Order Logic (4) None of t The minimum number of colors needed to evertices and 2 edges is: (1) 1 (2) 2 (3) 3 (4) 4  A graph with n vertices will definitely have sethetotal number of edges are: (1) Less than (n-1) (2) Greater than (n-1)/2 (3) Greater than n(n-1)/2 (4) Greater than n(n-1)/2 A PERT network has 09 activities on its critical of each activity on the critical path is: (1) 03 (2) 09 (3) 27 (4) 81	Which of the following is equal to the logical expression.  (X^Y)→(Z'^X)→(X≡1)?  (1) Contradiction (2) .Valid (3) First Order Logic (4) None of the above  The minimum number of colors needed to color a grap vertices and 2 edges is: -  (1) 1 (2) 2  (3) 3 (4) 4  A graph with n vertices will definitely have a parallel edge the total number of edges are:-  (1) Less than (n-1)  (2) Greater than (n-1)/2  (3) Greater than n(n-1)/2  (4) Greater than n(n-1)/2  A PERT network has 09 activities on its critical path. The standard critical path is:  (1) 03 (2) 09  (3) 27 (4) 81
equal to the logical e  (2) Valid  (4) None of t  of colors needed to e  (2) 2  (4) 4  will definitely have ses are: se are: ctivities on its critical citical path is 03. The sequence of the	equal to the logical expression.  ?  (2) .Valid  (4) None of the above  of colors needed to color a grap.  (2) 2  (4) 4  will definitely have a parallel edus are:  2  2  (2) 2  (3) The standard  (2) 09  (4) 81
	he above color a grap a parallel ed parallel ed path. The standard

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Code-O

_				87.	10		86.	85	Question No.
(4) 1/2443	(3) 1/1260	(2) 2/315	is: (1) 3/560	A bag contains 2 P the bag at random, drawing 2 Pen first	(3) 05 Green faces (4) 05 Green faces	(1) 05 Green faces	A six sided unbiased seven times. Which of the experiment?	Two people: Amar and Akbar have picked 10 Mangoes, 10	4
36	97.70		the Gallin of Petro action and the state of the second formal and the state of the second sec	ens, 3 Pencils and 4 one at a time, without followed by 3 Pencils	05 Green faces and 02 Blue faces 05 Green faces and 01 Blue face	03 Green faces and 03 Blue faces	sided unbiased dice with 04 Green times. Which of the following combine experiment?	nd Akbar have picked number of ways the (2) 2100	Questions
		control being to	grami sonobini Varietizati e prob	A bag contains 2 Pens, 3 Pencils and 4 Sharpeners. Item are drawn from the bag at random, one at a time, without replacement. The probability of drawing 2 Pen first followed by 3 Pencils and subsequently the 4 Sharpeners	whatatan later at a constraint of the constraint	A British with 11 design	A six sided unbiased dice with 04 Green faces and 04 Blue faces is rolled even times. Which of the following combinations is the most likely outcome of the experiment?	110 Mangoes, 10 Ma	15 Rana
	•		à	drawn fron probability of the state of the s	4		ely outcome	s between	na and 14

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Question No.	88. I	G	•	•		89.									No.	
	In a graph, if $e = (u, v)$ , then if means :-	(1) u is adjacent to v but v is not adjacent to u	(2) e begi	(3) u is pı	(4) both (	n examin	n A is 0.5 probability	the papers is :-	(1) 0.06	(3) 0.12	Honda Au X and Y.	shock abs quality tes	Of Y's sho	chosen sh	(1) 0.720	
	if.e = (u,	jacent to	e begins at u and ends at v	u is predecessor and v is successor	both (2) and (3)	ation con	of failing	; si :-	: ::		tomobile X supplie	orbers ar	ck absorb	ock absor		
. Que	v), then if	v but v is	d ends at	r and v is		sists of tw	in X is 0.				contracte s 60% and	e subject sidered rel	ers, 72%	ber, whic		
Questions	means :	not adja	۷	successo		vo papers	6. The pr		(2) 0.	(4) 0.18	d to buy d Y supp	ed to a quiable. Of	are relia	h is foun	(2) 0	
	1707	cent to u		Ħ	7 ±	; X and	obability		0.50	18	shock al lies 40%	quality to X's shock	ble. The	d to be r	0.667	
		-	ģ) i		æ.	An examination consists of two papers; X and Y. The probability of failing	probability of failing in X is 0.6. The probability of a student failing in both			+ 8	Honda Automobile contracted to buy shock absorbers from two suppliers X and Y. X supplies 60% and Y supplies 40% of the shock absorbers. All	shock absorbers are subjected to a quality test. The ones that pass the quality test are considered reliable. Of X's shock absorbers, 96% are reliable.	Of Y's shock absorbers, 72% are reliable. The probability that a randomly	chosen shock absorber, which is found to be reliable, is made by Y is:		
l l	I Cett					bability o	nt failing		1 9		om two s	nes that , 96% are	y that a r	nade by		
						f failir	in bot				upplie bers.	pass t reliab	andon	ST A		

X-138 

91. Consider a network with five nodes, N1 to N5, as shown below 이 또 또한다스의 40호 pile 수 jir 모이(N) Questions Chestan Pily Little office and 8

have stabilized, the distance vectors at different nodes are as under: The network uses a Distance Vector Routing Proctocol, Once, the Route

N1: (0, 1, 7, 8, 4)

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N2: (1, 0, 6, 7, 3) N3: (7, 6, 0, 2, 6)

N4: (8, 7, 2, 0, 4)

N5: (4, 3, 6, 4, 0)

Each distance vector is the distance of best known path at that instance to change in cost of a link will cause the two incident nodes to change only Then all nodes update the distance vectors. In between two rounds, any all nodes exchange their distance vectors with their respective neighbors. symmetric and the cost is identical in both the directions. In each round, nodes, N1 to N5, where the distance to itself is 0. Also, all links are distance vector at node, N3? both directions). After the next round updates. What will be the new that entry in their distance vectors. The cost of link N2-N3 reduces to 2 (in

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(7, 2, 0, 6, 3)(6, 4, 1, 0, 2)

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(2): (3, 2, 0, 2, 5) (3, 1, 6, 0, 2)

SET-X

G-ebog SEI-X

Question No. 92. 93. 96. 95. 94. of offset field in the last fragment? number of IP fragments will be transmitted and what will be the contents header is 20 bytes. There is no option field in IP header. How may total over an Ethernet LAN. Ethernet frames may carry data up to 1500 bytes Host A sends a UDP datagram containing 8880 bytes of user data to host B (i.e. MTU = 1500 bytes). Size of UDP header is 8 bytes and size of IP 3 Which of these are the features present in IPv4 but not in IPv6? propagation delays in transmitting the file from S to D? link bandwidth on each link is 1Mbps. Let the file be broken down into travel over each link at a speed of 108 meters per second. Assume that the  $\mathrm{L_{s}}$  connects  $\mathrm{R_{z}}$  to D. Let each link be of length 100 km. Assume signals three links  $(L_1, L_2, and L_3)$ .  $L_1$  connects S to R1;  $L_2$  connects  $R_1$  to  $R_2$ ; and Consider a source computer (S) transmitting a file of size 106 bits to 1000 packets each of size 1000 bits. Find the total sum of transmission and destination computer (D) over a network of two routers (R, and R $_2$  ) and Which of the following is/are example(s) of state-full application layer Which of the following is used in wireless LAN? 7 and 8880 Header checksum 5 and 6400 orthogonal frequency division multiplexing space division multiplexing Options  $1010 \, \mathrm{ms}$  $1000 \, \mathrm{ms}$ none of the mentioned time divison multiplexing Questions (4) 8 and 6625 (4) All of the above 1015 ms 7 and 1110 1005 ms Fragmentation

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(i) HTTP

(ii) FTP (iv) POP3

FTP

(i) and (ii) only

(ii) and (iii) only

(4) 2

(iv) only

(ii) and (iv) only

protocols?

(29)

Q-obc-O

	100.			99.				98.									97.	Question No.
(1) Python (2) DHTML (3) PHP (4) Java Script	Which of the following language pre	100000	<ol> <li>Amazon Cloud Watch</li> <li>AbiCloud</li> <li>BMC Cloud Computing Initiative</li> </ol>	Which of the following is the Virtual machine conversion cloud?	All of the above	<ul><li>(2) That the authentication be portable</li><li>(3) That you establish an identity</li></ul>	(1) That the identity be authenticated	Which of the following is required by Cloud Computing?	(4) 100 characters/sec, 153 characters/sec	(3) 100 characters/sec, 136 characters/sec	(2) 80 characters/sec, 233 characters/sec	(1) 60 characters/sec, 146 characters/sec	rates of T1 and T2?	If the bit rate is 1200 bits/second in both cases, what are the transfer	eight bit sync characters followed by 30 eight bit information characters	and 1 parity bit for each character. A synchronous transmission T2 uses 3	A serial transmission T1 uses 8 information bits, 2 start bits, 1 stop	Questions
<b>b</b>	r IoT analytics?		The State of Control o	conversion cloud?	18	TO PAR	1 10 1	omputing?	ST TANKET		na contra i i i i			ses, what are the transfer	bit information characters.	ous transmission T2 uses 3	its, 2 start bits, 1 stop bit	Av Av

	ANSWER KEYS OF C	OMPUTER SCIENCE	FOR SESSION 202	2-23
Q. NO.	Α	В	С	D
1	4	3	2	1
2	2	1	3	4
3	3	4	2	2
4	2	2	3	3
5	1	4	1	2
6	3	2	2	4
7	3	2	3	
8	4	2	1	3
9	3	1	4	1
10	3	1		3
11	1	3	3	2
12	4		1	3
13	2	1	3	3
14		2	1	2
15	3	3	3	2
16	2	4	2	3
17	4	1	1	1
	3	3	1	3
18	1	1	4	4
19	3	4	1	2
20	2	3	4	3
21	1	2	4	3
22	3	1	2	1
23	1	3	3	4
24	3	4	2	2
25	2	3	1	4
26	1	4	3	2
27	1	2	3	2
28	4	3	4	2
29	1	1	3	1
30	4	3	3	1
31	2	1	3	3
32	1	4	3	1
33	3	2	2	2
34	4	3	2	3
35	3	2	3	4
36	4	4	1	1
37	2	3	3	3
38	3	1	4	1
39	1	3	2	4
40	3	2	3	3
41	2	3	3	2
42	3	3	1	1
43	2	2	3	3
44	3	2	2	4
45	1	3	3	
46	2	1	1	3
47	3	3		4
48	1	4	2	2
49	4		2	3
		2	3	1
50	3	3	4	3

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Q. NO.	Α	OMPUTER SCIENCE B	С	D
51	3	3	2	1
52	1	1	1	3
53	2	3	3	1
54	3	2	4	3
55	4	3	3	2
56	1	1		
57	3	2	4	1
58	1		2	1
59	4	3	3	4
60	3	4	1	1
61	3		3	4
62	1	2	3	2
63	3	2	1	3
64		2	4	2
	2	4	2	3
65	3	3	4	1
66	1	2	2	2
67	2	3	2	3
68	2	4	2	1
69	3	3	1	4
70	4	1	1	3
71	3	2	2	3
72	1	3	2	1
73	4	2	2	3
74	2	3	4	2
75	4	1	3	3
76	2	2	2	1
77	2	3	3	2
78	2	1	4	2
79	1	4	3	3
80	1	3	1	4
81	2	1	1	4
82	2	3	4	2
83	2	1	2	3
84	4	3	3	2
85	3	2	2	1
86	2	1	4	3
87	3	1	3	3
88	4	4	1	4
89	3	1	3	3
90	1	4	2	3
91	3	4	3	2
92	3	2	1	2
93	2	3	2	2
94	2	2	3	4
95	3	1	4	3
96	1	3	1	2
97	3	3	3	3
98		4		
	4	1751	1	4
99	2	3	4	3

(A) (12/22)
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