otal No. of Printed Pages : 28	Question Booklet No
(To be filled up	by the candidate by blue/black ball-point pen)
⊰oll No.	
soll No. (Write the digits in words)	9018
erial No. of OMR Answer Sheet	
entre Code No.	
av and Date	(Signature of Invigilator)

INSTRUCTIONS TO CANDIDATES

(Use only blue/black ball-point pen in the space above and on both sides of the OMR Answer Sheet)

- Within 30 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that
 it contains all the pages in correct sequence and that no page/suestion is missing. In case of faulty
 Question Booklet bring it to the notice of the Superintendent/Intigilators immediately to obtain a
 fresh Question Booklet.
- 2. Do not bring any loose paper, written f plank, it side the Examination Hall except the Admit Card.
- A separate OMR Answer Sheet is given. It should not be folded or mutilated. A second OMR Answer
 Sheet shall not be provided. Only the OLR Answer Sheet will be evaluated.
- Write all the entries by blue/black ball ben in the space provided above.
- 5. On the front page of the OMR Answer Sheet, write by pen your Roll Number in the space provided at the op, and by darkening the circles at the bottom. Also, write the Question Booklet Number, Centre Code Number and the Set Number (wherever applicable) in appropriate places.
- No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR Answer Sheetland also Roll No. and OMR Answer Sheet Serial No. on the Question Booklet.
- 7 Any change in the afteresaid entries is to be verified by the Invigitator, otherwise it will be taken as unfair means.
- 8. Each question in this Booklet is followed by four alternative answers. For each question, you are to record the correct option on the OMR Answer Short by darkening the appropriate circle in the corresponding row of the OMR Answer Sheet, by ball-point pen as mentioned in the guidelines given on the first page of the OMR Answer Sheet.
- For each question, darken only one circle on the OMR Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
- Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero mark).
- For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
- 2 On completion of the Test, the Candidate must handover the OMR Answer Sheet to the Invigilator in the examination room/hall. However, candidates are allowed to take away Text Booklet and copy of OMR Answer Sheet with them.
- 3. Candidates are not permitted to leave the Examination Hall until the end of the Test.
- If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment
 as the University may determine and impose on him/her.

SPACE FOR ROUGH WORK

रफ़ कार्य के लिए जगह

No. of Questions: 120

Time: 2 Hours Full Marks: 360

Note:

- (1) Attempt as many questions as you can. Each question carries 3 marks.
 One mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question.
- (2) If more than one alternative answers seem to be approximate to the correct answer, choose the closest one.
- 1. Power set of empty set has exactly ----- subset.
 - (1) zero
- (2) one
- (3) two
- (4) three
- 2. The truth table for $(p \lor q) \lor (p \land r)$ is the same as the truth table for
 - (1) $(p \lor q) \land (p \lor r)$
- (2) $(p \lor q) \land r$
- (3) $(p \lor q) \land (p \land r)$

- (4) $p \vee q$
- 3. For a complete graph with N vertices, the total number of spanning trees is given by
 - (1) 2N-1
- (2) $N^{(N-1)}$
- (3) $N^{(N-2)}$
- (4) 2N + 1

76)

Consider the statement, "Either $-2 \le x \le -1$ or $1 \le x \le 2$ ". The negation of this statement is

(1)
$$x < -2$$
 or $2 < x$

(2)
$$-1 < x < 1$$

(3)
$$-2 < x < 2$$

(4)
$$x \le -2$$
 or $2 \le x$ or $-1 < x < 1$

Consider the following matrix $A = \begin{bmatrix} 2 & 3 \\ x & y \end{bmatrix}$. If the eigenvalues of A are 4 and 8. then

(1)
$$x = -4$$
, $y = 10$

(2)
$$x = 5, y = 8$$

(3)
$$x = -3$$
, $y = 9$

(4)
$$x = 4, y = 10$$

The convergence of which one of the following method is sensitive to starting value

How many licence plate can be formed from 3 English letters followed by 3 7. digits?

(1)
$$26^3 * 10^2$$
 (2) $26^2 * 10^3$ (3) $26^3 * 10^3$ (4) $26^2 * 10^2$

$$(2) 26^2 * 10^3$$

$$(3) 26^3 * 10^3$$

$$(4) 26^2 * 10^2$$

- How many integers from 100 to 999 are divisible by 7? 8.
 - (1) 112
- (2) 115
- (3) 126
- (4) 128

- Data about data is termed as 9.
 - (1) directory
- (2) root
- (3) meta data (4) data bank

10.	Which one of the following is true?
	(1) Every relation in 3NF is also in BCNF
	(2) No relation can be in both BCNF and 3NF
	(3) Every relation in BCNF is also in 3NF
	(4) A relation R is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R
11.	Consider a schema $R(A, B, C, D)$ and functional dependencies $A \rightarrow B$ and $C \rightarrow D$. Then the decomposition of R into $R1(AB)$ and $R2(CD)$ is
	(1) dependency preserving and lossless join
	(2) dependency preserving but not lossless join
	(3) lossless join but not dependency preserving
	(4) not dependency preserving and not lossless join
12.	ensures that once transaction changes are done, they cannot be undone or lost, even in the event of a system failure.
	(1) Atomicity (2) Durability (3) Isolation (4) Consistency
13.	When a transaction is abnormally terminated, the equivalent of a ——command occurs?
	(1) QUIT (2) EXIT (3) COMMIT (4) ROLLBACK
14.	Deadlocks are possible only when at least one of the transactions wants to obtain a(n) ——— lock on a data item.
(76)	(1) partial (2) shared (3) exclusive (4) binary (P.T.O.)

15.	If there is more than or relation schema is class		schema in DI	BMS, then each key in
	(1) candidate key	(2)	primary key	
	(3) super key	(4)	composite key	
16.	What type of join is ne matching values?	eeded when you w	rish to include	rows that do not have
	(1) Cross-join (2)	Inner-join (3)	Outer-join	(4) Equi-join
17.	Which one of the follow	wing is true abou	t PL/SQL curs	ors?
	(1) Explicit cursors are	e automatically cr	eated by Oracl	c.
	(2) Implicit cursors are	e programmer def	ined cursors.	
	(3) The most recent in attributes like %FC	mplicit cursor is DUND, %ISOPEN,	called the SQI %NOTFOUND	cursor, and has the
	(4) All of the above			
18.	Given relations r(w, x) r, s is guaranteed to b	and s(y, z), the rese same as r, pro	sult of SELECT	T DISTINCT w, x FROM
	(1) s has no duplicates	s and r is non-en	npty	
	(2) r and s have the s	ame number of t	uples	
	(3) r has no duplicates	s and s is non-en	npty	
	(4) r and s have no du	uplicates		
19.	What are the time comp element from end in a s list, you may assume	singly linked list? I	10th element fr et n be the nur	om beginning and 10th mber of nodes in linked
	(1) $O(n)$ and $O(1)$	(2)	O(n) and $O(n)$	1)
	(3) $O(1)$ and $O(n)$	(4)	O(1) and O(1)	
76)		4		

20.	Several factors the stated. Which on	at affect the efficient e of the following	acy of lockup operatis not one of those	tions in a hash table are factors?
	(1) Number of ele	ements stored in t	he hash table	
	(2) Size of elemen	nts stored in the h	ash table	
	(3) Number of bu	ckets in the hash	table	
	(4) Quality of the	hash function		
21.	What is the infix		following postfix ex	xpression?
		x 12 + z 17 y	y + 42 */ +	
	(1) $x + 12 + z / ((1$	7 + y) * 42)	(2) $x + 12 + z / (17)$	7 + y) * 42
	(3) $x + (12 + z) / (12 + z)$	(7 + y * 42)	(4) $(x+12+z)/($	17 + y * 42)
22.	function in C) and	you need to calcul	ate x^n, where x ca	calculate power (pow() n be any number and n ime complexity of your
	(1) O(n)	(2) $O(\log \log n)$	(3) O(n log n)	(4) O(log n)
23.	The upper bound algorithm is	d on the time con	mplexity of the no	ondeterministic sorting
	(1) O(n)	(2) $O(n^2)$	(3) O(log n)	(4) O(1)

Consider a situation where swap operation is very costly. Which of the following

sorting algorithms should be preferred so that the number of swap operations is

(2) Merge sort

(4) Selection sort

24.

minimized in general?

(1) Heap sort

(3) Insertion sort

25.

	(1) O(N log N)		(2)	O(100 log N)	
	(3) O(2 ^N)		(4) (O(N)	
26.	The given array is How many iterati	arr = { 1,2,4,3 } . Bub ons will be done to	ble so sort	ort is used to so the array with	ort the array elements h improvised version?
	(1) 4	(2) 1	(3)	0	(4) 2
27.	Given an undirect		V vei	rtices and E e	edges, the sum of the
	(1) E	(2) 2E	(3)	V	(4) 2V
28.	What is the min function (AB+C)	imum number of g if we have to use	gates only	required to in 2-input NOR	nplement the Boolean gates?
	(1) 2	(2) 3	(3)	4	(4) 5
29.		line decoders with der without using			needed to construct a
	(1) 7	(2) 8	(3)	9	(4) 10
30.		ade by cross-coupling it will result in	ng two	o NAND gates,	if both S and R inputs
	(1) $Q = 0$, $Q' = 1$		(2)	Q=1, Q'=0	
	(3) $Q = 1$, $Q' = 1$		(4)	indeterminate	states
(76)		6			

Which is better computing time for analyzing an algorithm in the given options?

Given the following K-map, which one of the following represents the minimal SOP of the map?

	- 3	wx			
		00	01	11	10
	00	0	х	0	х
	01	x	1	x	1
yz	11	0	x	1	0
	10	0	1	x	0

(1)
$$xy + y'z$$

(2)
$$wx'y' + xy + xz$$

(3)
$$w'x + y'z + xy$$

$$(4)$$
 $xz + y$

Consider a 4 bit Johnson counter with an initial value of 0000. The counting 32. sequence of this counter is

Given $\sqrt{(224)_r} = (13)_r$. The value of the radix r is 33.

- (1) 10
- (2) 8
- (3) 5

(4) 6

Computers use addressing mode techniques for 34.

- (1) giving programming versatility to the user by providing facilities as pointer to memory counters for loop control
- (2) to reduce no. of bits in the field of instruction
- (3) specifying rules for modifying or interpreting address field of the instruction
- (4) All of the above

35.	A computer has a 256 block size of 32 Byte controller. Each cache valid bits, 1 modified field of an address is	es. The processor of tag directory entry bit and 1 replacem	sends 32 bit a contains, in ad	ddresses to the cach ldition to address tag,
	(1) 11 (2)	14 (3)	16	(4) 27
36.	The extra time needed as	to bring the data i	nto memory in	case of a miss is calle
	(1) delay	(2)	propagation t	ime
	(3) miss penalty	(4)	none of the n	nentioned
37.	The return address fr	om the interrupt-s	ervice routine	is stored on the
	(1) system heap	(2)	processor regi	ster
	(3) processor stack	(4)	memory	
38.	The time taken to swi while the time taken t following is TRUE?	itch between user o switch between t	and kernel mo wo processes b	des of execution be to be t2. Which one of the
	(1) t1 > t2			
	(2) $t1 = t2$			
	(3) t1 < t2			
	(4) nothing can be sa	id about the relati	on between t1	and t2
(76)		8		

39.	A process execute	es the code		
	fork();	194		
	fork();			
	fork();			
	fork();			
	The total number	of child processes	created is	
	(1) 8	(2) 7	(3) 16	(4) 15
40.	Which one of the	following does not	interrupt a runni	ng process?
	(1) A device		(2) Timer	
	(3) Scheduler pro	cess	(4) Power failure	
41.	units and arrive a	t times 0, 2 and 6 operating system in	respectively. How aplements a shorte	e 10, 20 and 30 time many context switches est remaining time first at time zero and at the
	(1) 4	(2) 3	(3) 2	(4) 1
42.	A system contain operation. The mi such that deadloo	nimum number of	nd each requires tape units which	four tape units for its the system must have
	(1) 12	(2) 13	(3) 14	(4) 16
43.				P operations and 4 V resulting value of the
	(1) 0	(2) 8	(3) 9	(4) 10
76)		9		(P.T.O.)

44.	Which one of the following page replaneously?	acement algorithms suffers from Belady's
	(1) FIFO	(2) LRU
	(3) Optimal page replacement	(4) Both LRU and FIFO
45.	pages loaded to begin with. The system	replacement. It has 4 page frames with no m first accesses 100 distinct pages in some 0 pages but now in the reverse order. How
	(1) 192 (2) 100	(3) 196 (4) 200
46.		sing variable partitions but no compaction. es 200 Kbyte and 260 Kbytes respectively. Obytes that could be denied is for
	(1) 151 (2) 181	(3) 231 (4) 541
47.	per track. 512 bytes of data are stor	es, 128 tracks per surface and 256 sectors red in a bit serial manner in a sector. The mber of bits required to specify a particular
	(1) 64 Gb, 28 bits	(2) 512 Mb, 20 bits
	(3) 256 Mb, 28 bits	(4) 256 Mb, 19 bits
48.	Communication between a computransmission	uter and a keyboard involves ———
	(1) automatic	(2) half-duplex
	(3) full-duplex	(4) simplex
76)	10	

49.	A —— is a device that forwards p routing information included in the	ackets between networks by processing the packet.	•
	(1) Bridge	(2) Firewall	
	(3) Router	(4) All of the mentioned	
50.	Network congestion occurs		
	(1) in case of traffic overloading		
	(2) when a system terminates		
	(3) when connection between two	nodes terminates	
	(4) None of the mentioned		
51.	Bits can be send over guided and	unguided media as analog signal by	
	(1) digital modulation	(2) amplitude modulation	
	(3) frequency modulation	(4) phase modulation	
52 .	Which one of the following task is	s not done by data link layer?	
	(1) Framing	(2) Error control	
	(3) Flow control	(4) Channel coding	
E2	1 f information at the	application layer is called	
53.	(1) packet (2) message	(3) segment (4) frame	
54.	Electronic mail uses this applicat	ion layer protocol	
	(1) SMTP (2) HTTP	(3) FTP (4) SIP	
		1-1 (P.T.C) .)

(76)

(76)

55.	The function of p	ohysical layer is	S	
	(1) error correcti	on and detection	on	
	(2) piggybacking			
	(3) flow control			
	(4) determine nu	mber of volts t	to represent 1 or 0	
56.	A half byte is kn	own as		
	(1) data	(2) bit	(3) nibble	(4) variable
57.	What is the resu	lts of the progr	ramme?	
	<pre>#include <st int="" main()<="" pre=""></st></pre>	dio.h>		
	{	/#II-II- III- III 0	/ 1 \ n	
	returi	("Hello World! % n 0;	od \n", x);	
)			
	(1) Hello World!	x;		
	(2) Hello World!	followed by a j	unk value	
	(3) Compile time	error		
	(4) Hello World!			
58.	The scope of an a	automatic varia	ble is	
	(1) within the blo	ck it appears		
	(2) within the blo	7.7	k it appears	
	(3) until the end		**	
	(4) Both (1) and	F1 3.7%		
	The second secon	1.05		

12

59. What would be the equivalent pointer expression for referring the array element a [i][j][k][1]?

```
(1) \{\{((a+i)+j)+k\}+1\}
```

(3)
$$(((a+i)+j)+k+1)$$

(4)
$$((a+i)+j+k+1)$$

60. What is the similarity between a structure, union and enumeration?

- (1) All of them let you define new values
- (2) All of them let you define new data types
- (3) All of them let you define new pointers
- (4) All of them let you define new structures

61. What will be the output of the program?

```
#include<stdio.h>
int main()
{
    enum days {MON = -1, TUE, WED = 6, THU, FRI, SAT};
    printf("%d, %d, %d, %d, %d, %d\n", MON, TUE, WED, THU, FRI, SAT);
    return 0;
}
```

(1) -1, 0, 1, 2, 3, 4

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

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

(4) -1, 0, 6, 7, 8, 9

62. How would you round off a value from 1.66 to 2.0?

(1) ceil(1.66)

(2) floor(1.66)

(3) round(1.66)

(4) roundto(1.66)

76)

13

(P.T.O.)

63. What about the following statement?

	(1) Declaration	2) Definition	(3) Function	(4) Error
64.	How many times the #include <stdiction 0;="" i="" int="" main()="" main();="" printf("c="" return="" th="" {="" }<=""><th></th><th>rint "C Programmi</th><th>ng" ?</th></stdiction>		rint "C Programmi	ng" ?
	(1) Infinite times		(2) 32767 times	
	(3) 65535 times		(4) Till stack ove	rflows
65.	The Newton-Raphso (1) converge to -1 (3) converge to -√		to find the root of the (2) converge to √ (4) not converge	he equation $x - 2 = 0$
66.	A graph consisting	of only isolated a	n vertices is	
	(1) 1-chromatic	2) 2-chromatic	(3) 3-chromatic	(4) n-chromatic
67.	A subnet has been maximum number			5.255.192. What is t bnet?
	(1) 14	(2) 30	(3) 62	(4) 126
(76)		14		

extern int i;

68.	Which one of the following statements is FALSE regarding a bridge?
	(1) Bridge is a layer 2 device

- (2) Bridge reduces collision domain
- (3) Bridge is used to connect two or more LAN segments
- (4) Bridge reduces broadcast domain
- 69. Which one of the following statements is TRUE about CSMA/CD?
 - (1) IEEE 802.11 wireless LAN runs CSMA/CD protocol
 - (2) Ethernet is not based on CSMA/CD protocol
 - (3) CSMA/CD is not suitable for a high propagation delay network like satellite network
 - (4) There is no contention in a CSMA/CD network
- 70. The minimum number of page frames that must be allocated to a running process in a virtual memory environment is determined by
 - (1) the instruction set architecture (2) page size
 - (3) physical memory size
- (4) number of processes in memory
- 71. A Priority-Queue is implemented as a Max-Heap. Initially, it has 5 elements. The level-order traversal of the heap is given below

Two new elements 1 and 7 are inserted in the heap in that order. The level-order traversal of the heap after the insertion of the elements is

(1) 10,8,7,5,3,2,1

(2) 10,8,7,2,3,1,5

(3) 10,8,7,1,2,3,5

(4) 10,8,7,3,2,1,5

72.	The followin given order	g numbers are in	serted into an emp	oty binary search tree in	the
		10, 1,	3, 5, 15, 12, 16		
		height of the bi		the height is the maxim	iun
	(1) 2	(2) 3	(3) 4	(4) 6	
73.	The minimu function F =	m number of 2-in $(X' + Y')(Z + W)$ is	input NAND gates	required to implement	the
	(1) 3	(2) 4	(3) 5	(4) 6	
74.	How many p 10101100 to	ulses are needed to 00100111 (rightr	o change the conter nost bit is the LSB	nts of a 8-bit up counter fr	on
	(1) 134	(2) 133	(3) 124	(4) 123	
75.	pure demand	d paging system	with 100 records	cular program executing in per page, with a free mage faults?	ain
010	00, 0200, 0430	, 0499, 0510, 0530	0, 0560, 0120, 0220	0, 0240, 0260, 0320, 0370)
	(1) 13	(2) 8	(3) 7	(4) 10	
76.	Consider the tuples, then	join of a relation F the maximum and	R with a relation S. I minimum sizes o	If R has m tuples and has f the join respectively are	s n
	(1) $m+n$ and		(2) mn and		
	(3) m + n and	l m-n	(4) mn and	m + n	
76)			16		

(P.T.O.)

77.	What is the min function of two	imum number of to input OR gate?	wo-input NANI	gates used to perform th	ie
	(1) One	(2) Two	(3) Three	(4) Four	
78.	The D-flip-flop ca	aptures the value of	of the input D	when there is a	
	(1) positive edge		(2) rising ed	ge	
	(3) negative edge	ye.	(4) non-risin	g edge	
79.	The scheduling p	policy that has long	g waiting times	for small processes is	
	(1) SJF	(2) round robin	(3) FCFS	(4) FJS	
80.	The most import	ant schema for app	olication progra	ammers is	
	(1) physical sche	ema	(2) logical so	chema	
	(3) conceptual se	chema	(4) external	schema	
81.				and that represents the tim arch tree of n nodes?	e
	(1) O(1)	(2) O(log n)	(3) O(n)	(4) O(n log n)	
82.				ree is 30, 20, 10, 15, 25, 23 ler traversal sequence of th	
	(1) 10,20,15,23,2	25,35,42,39,30	(2) 15,10,25	,23,20,42,35,39,30	
	(3) 15,20,10,23,2	25,42,35,39,30	(4) 15,10,23	,25,20,35,42,39,30	

17

(76)

(P + Q' + R'); (P + Q' + R); (P + Q + R') is

83.

	(1) $(P'.Q+R')$ (2) $(P+Q'.R')$ (3) $(P'.Q+R)$ (4) $(P.Q+R)$
84.	Given the basic ER and relational models, which one of the following is INCORRECT?
	(1) An attribute of an entity can have more than one value
	(2) An attribute of an entity can be composite
	(3) In a row of a relational table, an attribute can have more than one value
	(4) In a row of a relational table, an attribute can have exactly one value or a NULL value
85.	In 'C' programming, if an array is used as a function argument, the array is passed
	(1) by value
	(2) by reference
	(3) none of these as array cannot be used as function argument
	(4) call by name
86.	In a memory-mapped I/O system, which one of the following will not be there?
	(1) LDA (2) IN (3) ADD (4) OUT
87.	The instructions which copy information from one location to another either in the processor's internal register set or in the external main memory are called
	(1) data transfer instructions (2) program control instructions
	(3) input-output instructions (4) logical instructions
(76)	18

The simplified SOP (Sum of Product) form of the Boolean expression

88.	Inheritance makes it easier to				
	(1) reuse and modify existing modules of code				
	(2) write and read code by sharing method names				
	(3) hide and protect data from external code				
	(4) Both (1) and (2)				
89.	In tuple relational calculus $P_1 \rightarrow P_2$ is equivalent to				
	(1) $\neg P_1 \lor P_2$ (2) $P_1 \lor P_2$ (3) $P_1 \land P_2$ (4) $P_1 \land \neg P_2$				
90.	Initial value of the semaphore that allows only one of the many processes to enter their critical section is				
	(1) 8 (2) 1 (3) 16 (4) 0				
91.	In SQL the statement select * from R, S is equivalent to				
	(1) select * from R natural join S (2) select * from R cross join S				
	(3) select * from R union join S (4) select * from R inner join S				
92.	Controlling redundancy in a database management system DOES NOT help to				
	(1) avoid duplication				
	(2) avoid unnecessary wastage of storage space				
	(3) avoid unauthorised access to data				
	(4) avoid inconsistency among data				

93.	Relational calculus is a			
	(1) procedural language	(2)	non-procedura	ıl language
	(3) data definition language	(4)	high level lang	guage
94.	A relation $R(X, Y, Z, W)$ with and $Y \to X$ is in	n functional d	ependencies XZ	$Z \to W, YZ \to W, X \to Y$
	(1) 1 NF only (2) 2 NF	only (3)	3 NF only	(4) BCNF
95.	Which one of the following	is not a broa	adband commu	nication medium?
	(1) Microwave	(2)	Fibre optic cal	ble
	(3) Twisted pair	(4)	Coaxial cable	
96.	Given two sorted list of size needed in the worst case b	m and n resp y the merge	pectively. The nasort algorithm	umber of comparisons
	(1) $m \times n$	(2)	maximum of r	n, n
	(3) minimum of m, n	(4)	m+n-1	
97.	Part of program where the executed indivisibly, is called	shared memo	ory is accessed	and which should be
	(1) semaphores	(2)	directory	
	(3) critical section	(4)	mutual exclusi	on
98.	Maximum possible height of	an AVL tree	with 7 nodes	is
	(1) 3 (2) 4	(3)	5	(4) 6
99.	In which of the storage places hole in the main memory in	ment strategie which it wil	es a program is I fit?	placed in the smallest
	(1) Best fit (2) First	ĩt (3)	Worst fit	(4) Buddy
(76)		20	90 Julius 2007 to 2003 (1986) (1988) 198	.,

100.	Page fault occurs	when			
	(1) the page is co	orrupted by applica	tion software		
	(2) the page is in	main memory			
	(3) the page is no	ot in main memory	3		
	(4) one tries to di	ivide a number by	0		
1 01 .		e with each frame o		only an average of 150 rage of 8000 bits. What	
	(1) 2 Mbps	(2) 60 Mbps	(3) 120 Mbps	(4) 10 Mbps	
102.		gers to sort, each ir dix sort can sort th	Manager and the same of the same and the same	its and each digit is in t	he
	(1) O(dnk)	(2) $O(d n^k)$	(3) $O((d+n))$	(4) $O(d(n+k))$	
1 03 .	In propositional le	ogic, given P and P	$0 \rightarrow Q$, we can	infer	
	(1) ~ Q	(2) Q	(3) P ∧ Q	(4) $\sim P \wedge Q$	
104.	The number of 1's	present in the bina	ry representatio	on of 10 × 256 + 5 × 16 + 5	is
	(1) 5	(2) 6	(3) 7	(4) 8	
105.	8-bit 1's complem	nent form of -77.2	25 is		
	(1) 01001101.010	00	(2) 01001101	.0010	
	(3) 10110010.101	11	(4) 10110010	.1101	
(76)		21	•	(P.T	.O.)

106.	The number of d	ifferent trees wi	th 8 no	des is		
	(1) 256	(2) 255	(3)	248	(4)	250
107.	Multi-valued dep	endency among	attribu	te is checked	d at wh	nich level?
	(1) 2 NF	(2) 3 NF	(3)	4 NF	(4)	5 NF
108.	An example of a	tautology is				
	(1) $x \vee y$		(2)	$x \vee (\sim y)$		
	(3) x v (~x)		(4)	$(x \Rightarrow y) \land (x \Rightarrow y)$	x <= y)	
109.	A program has referenced in the number of page	e order 012301	401234	, with three		
	(1) 0	(2) 4	(3)	6	(4)	9
110.	The following loo int $i = 0$; while $(i + + < i)$;					
	(1) will terminate	:	(2)	will go into	an inf	inite loop
	(3) will give com	pilation error	(4)	will never b	e exect	uted
111.	The memory allo	cation scheme s	ubjected	d to "externa	ıl" fragı	nentation is
	(1) segmentation		(2)	swapping		
	(3) demand pagir	ng	(4)	multiple co	ntiguou	s fixed partition
(76)			22			

112.	A trigger is				
	(1) a statement that enables to start any DBMS				
	(2) a statement that is executed by program	the user when de	bugging an application		
	(3) a condition the system tests for	the validity of the	database user		
	(4) a statement that is executed aut modification to the database	omatically by the sy	vstem as a side effect of		
113.	The algorithm, which may suffer from	om cascading roll b	oack, is		
	(1) 2 phase locking protocol	(2) strictly two p	hase locking protocol		
	(3) strictly two phase	(4) time stamp o	rdering protocol		
114.	Which one of the following sorting a and best case complexity?	algorithm has almo	st the same worst case		
	(1) Quick sort (2) Merge sort	(3) Heap sort	(4) Shell sort		
115.	In an empty circular queue, the fro	nt and rear are			
	(1) -1, -1 (2) 0, 0	(3) 0, 1	(4) 1, 1		
116.	A digital signature is used to provide security makes use of (1) digitally scanned signature				
	(2) a unique ASCII code number of the sender				
	(3) private key encryption				
	(4) public key encryption				
76)	2	3	(P.T.O.,		

76)

- The address of a class B host is to be split into subnets with a 6-bit subnet 117. number. What is the maximum number of subnets and the maximum number of hosts in each subnet?
 - (1) 62 subnets and 262142 hosts
- (2) 64 subnets and 262142 hosts
- (3) 62 subnets and 1022 hosts (4) 64 subnets and 1024 hosts
- 118. A relation over the set $S = \{x, y, z\}$ is defined by

$$\{(x,x),(x,y),(y,x),(x,z),(y,z),(y,y),(z,z)\}$$

what properties hold for this relation?

(I) Symmetric

(II) Reflexive

(III) Antisymmetric

(IV) Irreflexive

(1) (I) only

(2) (II) only

(3) (I) and (II) only

- (4) (I) and (IV) only
- Which one of the following DMA transfer modes and interrupt handling 119. mechanisms will enable the highest I/O band-width?
 - (1) Transparent DMA and polling interrupts
 - (2) Cycle-stealing and vectored interrupts
 - (3) Block transfer and vectored interrupts
 - (4) Block transfer and polling interrupts
- The number of tokens in the following 'C' statement is 120.

$$printf("i = \%d, \&i = \%x", i, \&i);$$

- (1) 3
- (2) 26
- (3) 21
- (4) 10

SPACE FOR ROUGH WORK

रफ़ कार्य के लिए जगह

अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण-पृष्ठ पर तथा ओ॰एम॰आर॰ उत्तर-पत्र के दोनों पृष्ठीं पर केवल नीली/काली बाल-प्वाइंट पेन से ही लिखें)

- 1. प्रश्न-पुस्तिका मिलने के 30 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई पृष्ठ या प्रश्न छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरे पुस्तिका प्राप्त कर लें।
- 2. परीक्षा भवन में *प्रवेश-पत्र के अतिरिक्त*, लिखा या सादा कोई भी खुला कागज साथ में न लाये।
- 3. ओ॰एम॰आर॰ उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा ओ॰एम॰आर॰ उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
- सभी प्रविष्टियाँ प्रथम आवरण-पृष्ठ पर नीली/काली बाल पेन से निर्धारित स्थान पर लिखें।
- 5. ओ०एम०आर० उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तं को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक एवं केन्द्र कोड नम्बर तथा सेट का नम्बर उचित स्थानों पर लिखें।
- 6. ओ॰एम॰आर॰ उत्तर-पत्र पर अनुक्रमांक संख्या, प्रश्न-पुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्न पुस्तिका पर अनुक्रमांक सं॰ और ओ॰एम॰आर॰ उत्तर-पत्र सं॰ की प्रविष्टियों में उपिरलेखन की अनुमति नहीं ले
- 7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साला का प्रयोग माना जायेगा।
- 8. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिये आपका ओ०एम०आर० उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को ओ०एम०आर० उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गाढ़ा करना है।
- 9. प्रत्येक प्रश्न के उत्तर के लिये केवल एक ही वृत्त को गाड़ा करें। एक से अधिक वृत्तों को गाड़ा करने पर अधः एक वृत्त को अपूर्ण भरने पर वह उत्तर गलत माना जायेगा।
- 10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चार हैं. तो सम्बन्धित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शृन्य अंक दिये जाये।
- 11. रफ कार्य के लिये प्रश्न-पुस्तिका के मुखपृष्ठ के अन्दर वाले पृष्ठ तथा अंतिम पृष्ठ का प्रयोग करें।
- 12. परीक्षा की समाप्ति के बाद अभ्यर्थी अपना ओ०एम०आर० उत्तर-पत्र परीक्षा कक्ष/हाल में कक्ष निरीक्षक को सींप दें। अभ्यः अपने साथ प्रश्न-पुस्तिका तथा ओ०एम०आर० उत्तर-पत्र की प्रति ले जा सकते हैं।
- परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमित नहीं होगी।
- 14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह विश्वविद्यालय द्वारा निर्धारित दंड का/की, भाग होगा/होगी।