RGUCET 22
Common Entrance Test, 2022
Ph.D. IN COMPUTER SCIENCE AND ENGINEERING

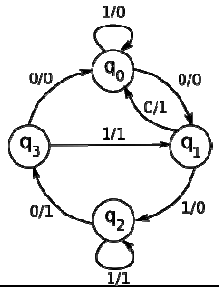
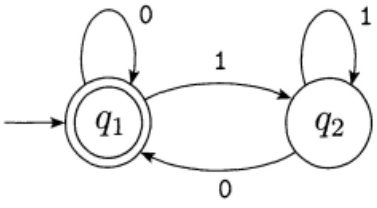
1	Inferring about the entire population based on data gathered on a small subset is referred to as					
	a) deductive inference	b) inductive inference	c) objective inference	d) pseudo-inference	(b)	inductive inference
2	A null hypothesis is defined as					
	a) hypothesis of no difference	b) Hypothesis that assigns value of zero to the variable	c) Hypothesis of zero significance	d)proposed proposition in the hypothesis test	(a)	hypothesis of no difference
3	Which of the following sampling methods is non-probabilistic?					
	a) Simple random sampling	b) Systematic samplin4	c) Cluster sampling	d) Quota sampling	(d)	Quota sampling
4	Which of the following sampling methods is generally preferred for a population of finite size?					
	a) Cluster sampling	b) Area sampling	c) Systematic sampling	d)Purposive sampling	(c)	Systematic sampling
5	The Longitudinal approach of Research deals with					
	a) Long-term researches	b) Short-term researches	c) Horizontal	d)Both (B) and (C)	(a)	Long-term researches

			researches			
6	Which of the following research focuses on factual goals?					
	a) Philosophical researches	b) Theoretical researches	c) Historical researches	d)Behavioural researches	(c)	Historical researches
7	Action research is a type of					
	a) Applied research	b) Quality research	c) Working research	d)Survey research	(a)	Applied research
8	Which of the following is the first step in a research process?					
	a) Selecting a topic	b) Development of a hypothesis	c) Formulating research problem	d)Writing a summary	(c)	Formulating research problem
9	Primary data for the research process can be collected by					
	a) Experiment	b) Survey	c) Literature review	d)Both (A) and (B)	(d)	Both (A) and (B)
10	Listing of books, journals and other sources used in the research					
	a) Footnote	b) Quotations	c)	d)Biography	(c)	Bibliography

			Bibliography			
11	List of special terms and phrases used in a research report is given in the form of a:					
	a) Footnote	b) Glossary	c) Quotations	d)References	(b)	Glossary
12	What types of questions are typically asked during interviews?					
	a) Open-ended	b) Close-ended	c) Puzzling	d)Natural	(a)	Open-ended
13	Which of the following completes the research process?					
	a) Research note	b) Report writing	c) Summary writing	d)Preface writing	(b)	Report writing
14	A short summary of Technical Report is called					
	a) Article	b) Publication	c) Guide	d)Research Abstract	(d)	Research Abstract
15	Failure to acknowledge the borrowed material is called					
	a) Plagiarism	b) Acknowledgement	c) Citation	d)Index	(a)	Plagiarism
16	The concrete observable events that represent abstract concepts or entities are referred to as					
	a) Data	b) Sample	c) Variable	d)Proposition	(c)	Variable
17	Facts, figures, and other pertinent materials that serve as the foundation for a study are referred to as					

	a) Sample	b) Data	c) Method	d)Theory	(b)	Data
18	The measurement scale in which values are categorized to represent qualitative differences and ranked in a meaningful manner is called					
	a) Valid Scale	b) Discrete Scale	c) Ordinal Scale	d)Continuous Scale	(c)	Ordinal Scale
19	Under which CC license, users are free to copy, add and redistribute the contents, even commercially					
	a) CC-BY-NC	b) CC-BY	c) CC-BY-SA	d)CC-BY-ND	(d)	CC-BY-ND
20	The creation/addition of data, observations or characteristics that did not occur during data collection or experimentation is called:					
	a) Paraphrasing	b) Falsification	c) Plagiarism	d)Fabrication	(d)	Fabrication
21	If the observations of a variable X are, -7, -21, -32, -47 and -38, then the value of the range will be:					
	a) -54	b) -40	c) 40	d)54	(c)	40
22	Standard Deviation of X and are S.D(X) = 3 and S.D(Y) = 4 respectively. If X and Y are independent random variables, then S.D(X-Y) is:					
	a) 1	b) 5	c) 7	d)25	(b)	5
23	Find the median of the students visiting a library on 7 consecutive days 711,713, 717, 713, 823,825,719					
	a) 713	b) 823	c) 825	d)717	(d)	717

24	Which distribution looks like a norm distribution but with a very heavy tail					
	a) Continuous	b) Cauchy	c) Discrete	d)Simple	(b)	Cauchy
25	The …… parameter influence the spread of the distribution about its median					
	a) Scale	b) Mode	c) Mean	d)Variance	(a)	Scale

26	An epsilon production is chosen by a predictive parser using P. FIRST set Q. FOLLOW set R. NULLABLE set Pick the correct option below:				(b)
	a) P only	b) Q only	c) R only	d) Both P and R	
27	Consider the Mealy machine below:  The minimum number of states of the corresponding Moore machine is				(c)
	a) 5	b) 6	c) 7	d) 8	
28	Consider the DFA D below:  It recognizes the language that				(c)

	a) Contains 0's and 1's only	b) Contains 0's and 1's only and ends with 0	c) Can contain ϵ also and ends with 0	d) None of these	
29	The maximum number of edges in a bipartite graph on 10 vertices is _____				(c)
	a) 15	b) 20	c) 25	d) 30	
30	The minimum number of colours that is sufficient to vertex-colour any planar graph is_____.				(b)
	a) 3	b) 4	c) 5	d) 6	
31	Vertex cover problem belongs to				(b)
	a) P set of problems	b) NP complete	c) NP-hard	d) Neither in P nor in NP	

32	A digital circuit that can store only one bit is a					
	a) Register	b)NOR gate	c)Flip-flop	d)XOR gate		c
33	Suppose the output of an XNOR gate is 1. Which of the given input combination is correct?					
	a) A = 0, B' = 1	b)A = 1, B = 1	c) A = 0, B = 1	d)A = 0, B = 0		d
34	The AND operation is equivalent to					
	a) Union	b)Intersection	c) Division	d) Both option a and b		b
35	The basic building blocks of the arithmetic logic unit in digital computers are known as					
	a) Adders	b)Attenuator	c)Demultiplexer	d)Subtractors		a
36	Pipelining increases _____ of the processor.					
	a)Throughp	b)Storage	c) Predictivity	d) Latency		a

	ut					
37	Which of the following memory improves the speed of execution of a program?					
	a) Primary memory	b)Cache memory	c) Secondary memory	d)Virtual memory		b
38	What type of device converts digital signals into a form that is intelligible to the user?					
	a) Storage device	b)Input device	c) Output device	d) Keyboards		c
39	Which method bypasses the CPU for certain types of data transfer?					
	a) Software interrupts	b)Interrupt driven I/O	c)Polled I/O	d)Direct Memory Access (DMA)		d
40	A register in the microprocessor that keeps track of the answer or result of any arithmetic or logic operation is the _____ .					
	a)Stack pointer	b)Instruction pointer	c) Program counter	d) Accumulator		d
41	The excess-3 code for 580 is given by					
	a) 100010110111	b)100010110011	c)100010010110	d)100001010110		b
42	The stack is also known as					
	a)Flash memory	b)LIFO memory	c) Flash memory	d) FIFO memory		b
43	DeMorgan's Law states that					
	a) (A+B)' = A'*B	b)(AB)' = A' + B'	c) (AB)' = A' + B	d)(AB)' = A + B		b
44	20) The number of Minterms for three variables					
	a) 8	b)16	c) 2	d) 1		a
45	What is the radix of the hexadecimal number system?					

	a) 2	b)10	c)8	d)16		d
46	1. The number of tokens in the following C statement. printf("i = %d, &i = %x", i, &i); is					
	a) 3	b) 2	c) 10	d) 21	c)	10

47	2. The value of j at the end of the execution of the following C program.
	
	int incr(int i)
	{
	static int count = 0;
	count = count + i;
	return (count);
	}
	int main ()
	{
	int i,j;
	for (i = 0; i<=4; i++)
	j = incr(i);
	printf("%d",j);
	}					

	a) 10	b) 4	c) 6	d) 7	a)	10
48	3. Which two features of object-oriented programming are the same?					
	a) Abstraction and Polymorphism features are the same	b) Inheritance and Encapsulation features are the same	c) Encapsulation and Polymorphism features are the same	d) Encapsulation and Abstraction	d)	Encapsulation and Abstraction
49	4. Which of these is NOT a relational or logical operator?					
	a) =	b) ||	c) ==	d) !=	a)	=
50	The keyword 'break' cannot be simply used within _____					

	a) do-while	b) if-else	c) for	d) while	b)	If-else
51	Which keyword is used to skip out statements of a loop and re-evaluate the exit condition?					
	a) break	b) continue	c) return	d) exit	(b)	Continue
52	The feature by which one object can interact with another object is ?					
	a) Message reading	b) Data transfer	c) Message Passing	d) Data Binding	c)	Message Passing
53	In multilevel inheritance, which is the most significant feature of OOP used?					
	e) Code efficiency	f) Code readability	g) Flexibility	h) Code reusability	d)	Code reusability
54	How to access data members of a class?					
	a. Dot, arrow or direct call	b. Dot operator	c. Arrow operator	d. Dot or arrow as required	d)	Dot or arrow as required
55	The overall complexity of merge sort algorithm is					
	a. O(n)	b) O(log n)	c) O(n2)	d) O(n log n)	d)	O(n log n)
56	Minimum number of moves required to solve a *Tower of Hanoi* puzzlewith n disksis					
	a) 2^n	b)2^{n-1}	c) 2^n-1	d)2n-1	c)	2^n-1
57	Prefix notation is also known as					
	a) Reverse Polish Notation	b) Reverse Notation	c) Polish Reverse Notation	d) Polish Notation	d)	Polish Notation

58	The number of swapping needed to sort numbers 18, 32,17,19,41,29,15,23 in ascending order using bubble sort is?					
	a) 12	b) 13	c) 14	d) 15	c)	14
59	What is the load factor?					
	a) Average array size	b) Average key size	c) None of the mentioned	d) Average chain length	d)	Average chain length
60	What is the best-case complexity of building a heap?					
	a) O(n*log(n))	b) $O(n^2)$	c) O(n)	d) O(n*long(n) *log(n))	c)	O(n)
61	What is the maximum height of an AVL tree with P nodes?					
	a) P	b) $log_2(P)$	c) $log_2(P)/2$	d) P/2	b)	$log_2(P)$
62	The maximum number of nodes in a binary tree at level i is?					
	a) 2^{i-1}, i>=1	b) 2^i, i>=0	c) 2^{i+1}, i>=1	d) 2log(i), i>=1	b)	2^i, i>=0
63	A node in a B+ tree can contain a maximum of 7 pointers. What is the minimum number of keys in leaves?					
	a) 6	b) 3	c) 4	d) 7	b)	3
64	The output of the following code will be #include <stdio.h> int main()					

	{
	int a = 1, b = 2, c = 3;
	printf("%d",a+=(a+=b,4,a));
	return 0;
	}					

	a) 4	b) 6	c) Garbage Value	d) Error message	b)	6
65	The deleted records forms a linked list which is known as					
	a) Delete List	b) Void list	c) Free list	d) Non-Exist List	c)	Free list
66	If an optimal solution can be obtained for a problem by obtaining optimal solutions for its subproblems, the problem possesses property called.					
	a) Optimal substructure	b) Overlapping subproblems	c) Memorization	d) Greedy Approach	a)	Optimal substructure
67	In an E-R diagram , the total participation by entities is represented as:					
	a) Dashed line	b) Double rectangle	c) Double line	d) Circle	C	Double line
68	In which normal form, the repeating attributes are removed to separate tables :					
	a) First Normal Form	b) Second Normal Form	c) Third Normal Form	d) Fourth Normal Form	A	First Normal Form

69	The indexing can slow down :					
	a) SELECT query	b) INSERT Statement	c) UPDATE statement	d) Both B and C	D	Both B and C
70	Which of the following is used for a binary many-to-many relationship to become the prime attribute:					
	a) Union of primary keys.	b) Intersection of primary keys.	c) Primary key of either one.	d) Primary key on the many side.	A	Union of primary keys.
71	When an attribute *name* is structured as consisting of first name, middle, and last name, then this type of attribute is called:					
	a) Simple attribute	b) Multi-valued attribute	c) Derived attribute	d) Composite attribute	D	Composite attribute
72	Every non prime attribute of a relation is fully functionally dependent on the primary key, then the relation will be in:					
	a) First Normal Form	b) Second Normal Form	c) Third Normal Form	d) Fourth Normal Form	B	Second Normal Form
73	Let R(A,B,C,D,E,X,Y) be a relational schema in which the following FDs are known to hold: AB -> CD, DE -> X, C -> E, X -> C and B -> Y. The relation schema R is:					
	a) in 2NF	b) in 3NF, but not in BCNF	c) in BCNF	d) not in 2NF	D	not in 2NF
74	When building a database, the data dealing with an entity is modeled as a:					
	a) Attribute	b) Class	c) Object	d) Table	A	Attribute

75	Which of the following command does not come under TCL ?					
	a) COMMIT	b) ROLLBACK	c) UPDATE	d) SAVEPOINT	C	UPDATE
76	In an E-R diagram, a Weak entity set is represented as:					
	a) Double rectangle	b) Underline	c) Double line	d) Double diamond	A	Double rectangle
77	Which one of the following ensures that all UPDATE and INSERTs satisfy the conditions in the view definition?					
	a) Uncheck	b) Check	c) With Check	d) With	C	With Check
78	Let R(ABCD) be a relation schema, and F={A->BC, AB->D, B->C) be the set of functional dependencies defined over R. which of the following represents closure of attribute set {B}:					
	a) {A,C,D}	b) {B,C}	c) {A,B,C}	d) {B}	B	{B,C}
79	If every non-key attribute is functionally dependant on primary key, then the relation will be in					
	a) 1NF	b) 2NF	c) 3NF	d) BCNF	C	3NF
80	While transforming an ER diagram to relational tables, the attribute that isn't considered in a table is:					
	a) Composite	b) Derived	c) Multi-valued	d) Single-Valued	B	Derived
81	The subset of a Super key is a candidate key if: The FTP client initiates both the control and data connections in the mode?					
	a)Active mode	b)Sleep mode	c)passive mode	d)inhibit mode	c)	passive mode
82	Message letters order is rearranged in cryptography by the					
	a)transpositional	b)substitution	c)Good	d) Bad	a)	transpositional

	ciphers	ciphers	ciphers	ciphers		ciphers
83	The URL is a standard for specifying any kind of information on the?					
	a)Internet	b)Server End	c)Client End	d)Webpage	a)	Internet
84	What class of IP address is reserved for multicast communication?					
	a)Class A	b)Class B	c)Class C	d)Class D	d)	Class D
85	Which of the following computer networks is built on the top of another network?					
	a)Prior Network	b)Overlay Network	c)Chief Network	d)Proxy Network	b)	Overlay Network
86	The 16 bit flag of 8086 microprocessor is responsible to indicate_____					
	a)the condition of result of ALU operation	b) the condition of memory	c) the result of addition	d) the result of subtraction		a
87	Executable code is the output of					
	a)Assembler	b)Linker	c)Loader	d) Compiler		b
88	If PE=1, then 80386 DX microprocessor operates in _____					
	a)Real mode	b)Virtual 86 mode	c)Protected mode	d)Special mode		c
89	A top Down parser generates					
	a)left-most derivation in reverse	b)left-most derivation	c)Right-most derivation in reverse	d)Right-most derivation		b
90	The action where a source program is parsed into an appropriate syntactic class is					

	called					
	a)General syntax analysis	b)Interpretation analysis	c)Syntax analysis	d)Lexical analysis		d

91	Which one of the following is a real time operating system?					
	a)RTLinux	b)VxWorks	c)Mac OS	d) Both (a) and (b)		D
92	Hard real time operating system has _____ jitter than a soft real time operatingsystem.					
	a)less	b)more	c)equal	d)opposite		A
93	Which one of the following resources are always be protected by the operating system?					
	a) CPU	b) I/O	c) Memory	d) B and A		C
94	Where the operating system keeps the information of files in a table?					
	a) Directory Index Table	b) File Allocation Table	c) File Index Table	d) File Folder Table		B
95	Which one of the following Scheduling algorithms allocates the CPU first to the process that requests the CPU first?					
	a) Priority scheduling	b)shortest job scheduling	c) First-come, first-served scheduling	d)B and A		C
96	To which software category does Knowledge based system belongs?					
	a) System software	b) Real time software	c) Embedded software	d) Artificial Intelligent software		D
97	Which box specification is not associated with clean-room approach?					
	a) Black box	b) Clear box	c) State box	d) White box		D
98	The entity relationship diagram					

	a) Depicts relationships between data objects	b) Depicts functions that transform the data flow	c) Indicates how data are transformed by the system	d) Indicates system reactions to external events		A
99	Which is not involved in software development process?					
	a) People	b) Problem	c) Practice	d) Process		C
100	Which of the following is not an area of concern in the design model?					
	a) Architecture	b) Data design	c) Interfaces design	d) Project scope		D