CPET -2021

M.Sc. -Computer Science –Set-1

Questions

Q. No.	Question
1	The functional difference between SR flip-flop and JK flip-flop is that A. JK flip-flop is faster than SR flip-flop B. JK flip-flop has a feedback path C. JK flip-flop accepts both inputs 1 D. JK flip-flop does not require external clock
2	When in-order traversing a tree resulted E A C K F H D B G; the preorder traversal would return A. FAEKCDBHG B. FAEKCDHGB C. EAFKHDCBG D. FEAKDCHBG
3	The operator used to get value at address stored in a pointer variable is: A. * B. & C. && D. ||
4	Find the decimal equivalent of the binary number $(110.101)_2$ A. $(6.623)_{10}$ B. $(6.625)_{10}$ C.$(6.605)_{10}$ D.$(6.613)_{10}$
5	Evaluate and find the value of $(101110)_2=(?)_8$ A. 55

	B. 56 C. 57 D. 54
6	Evaluate and find the value of $^{10}C_0+^{10}C_1+.....+^{10}C_{10}=$ A. 2^{10} B. 10^{10} C. 10^2 D. 2^9+1
7	Let $a_0=1=a_1$, then using the relation $a_n=a_{n-1}+a_{n-2}$, what is the value of a_{12} A. 234 B. 232 C. 233 D. 230
8	A graph contains 16 edges and all vertices of degree 02 then how many vertices it contains. A. 20 B. 15 C. 9 D. 10
9	What is the number of edges present in a complete graph having 'n' vertices? A. (n*(n+1))/2 B. (n*(n-1))/2 C. n D. Information given is insufficient
10	Which of the following complexity analysis is/are correct: A. The worst case running time for building a binary search tree is O(nlgn). B. The worst case running time for building a l tree is $O(n^2lgn)$.

	C. The worst case running time for building a binary search tree is $O(n^2)$. D. The worst case running time for building a red-black tree is$O(n^2)$.
11	What is the asymptotic notational form of the following recurrence relation? $T(n)=T(n-2)+n^2$ A. $\theta(n^3)$ B. $\theta(n^2)$ C. $\theta(n^{4.5})$ D. $\theta(n \times n^3)$
12	If two dice are thrown, what is the probability that the sum of the numbers on the dice is greater than or equal to 8? A. 5/18 B. 5/36 C. 8/36 D. 4/18
13	What is the minimum number of multiplications required to compute the polynomial: $a(x) = a_3x^3 + a_2x^2 + a_1x^1 + a_0$ A. 4 B. 6 C. 3 D. 2
14	An if ……. then……else statement is executed n times then what is the size of the sample space. A. n x n B. n^2 C. 2^n D. 2^{n+1}
15	Every address generated by the CPU is divided into A. Page number and segment number B. Page number and sequence number C. Segment number and offset D. Page number and page offset
16	A cycle in a resource allocation graph denotes A. There is a deadlock in the system B. There is not a deadlock in the system C. There may or may not be a deadlock in the system D. All of the above

17	A time quantum is used in which operating system? A. Multiprogramming B. Multitasking C. Real time D. None of the above
18	Which of the following "semaphore" can take negative integer values? A. Counting Semaphore B. Real Semaphore C. Both a and b D. Binary semaphore
19	Systems calls to allocate and free memory fall into which category of system calls? A. Process control B. File management C. Device management D. Info maintenance
20	Which layer(s) in OSI model is/are responsible for flow control? A. DL, Transport and Network B. DL and Transport C. Only DL D. Only Network
21	For a noiseless channel, _____ formula defines the theoretical maximum bit rate and _____ defines the bit rate in noisy channel? A. Code rate, throughput B. Spectral efficiency, redundancy C. Nyquist bit rate, Shannon capacity D. Shannon capacity, Spectral efficiency
22	High paging activity and page faults can be limited using _____ algorithm? A. Thrashing B. Local replacement C. Global replacement D. Aging
23	Assuming that the disk head is positioned at 15 and the disk queue of I/O blocks requests are 98, 37, 14, 124, 65, 67, find the number of disk moves required with FCFS. A. 338 B. 239 C. 310 D. 325
24	The time for the disk arm to move the heads to the cylinder containing the desired sector is called:

	A. rotational latency B. seek time C. waiting time D. none of the above
25	Which one of the following given statements possibly contains the error? A. select * from student where rollno = R1005; B. select * from student where rollno = 1005; C. select name from student; D. select phone_no where rollno = 1009 and Lastname = 'Dash';
26	In the following Query, which of the following can be placed in the Query's blank portion to display the salary from lowest to highest amount, and sorting the employees name alphabetically? SELECT * FROM employee ORDER BY salary ____, name ___; A. Asc, Asc B. Asc, Desc C. Desc, Asc D. All of the above
27	In a transaction, which of the following has “all-or-none” property? A. Isolation B. Durability C. Atomicity D. All of the mentioned
28	____ ensures that the data used during the execution of a transaction cannot be used by a second transaction until the first one is completed. A. Consistency B. Atomicity C. Isolation D. Durability
29	Given the relations *student (name, deptno, course_fees)* and *department (deptno, deptname, address)* Which of the following queries cannot be expressed using the basic relational algebra operations (U, -, x, π, σ, p)?

	A. Department address of every student B. The sum of all students' course_fees. C. Students whose name is the same as their department name D. All students of a particular department
30	Consider a schema R(A, B, C, D) and functional dependencies A -> B and C -> D. Then the decomposition of R into R1 (A, B) and R2(C, D) is: A. dependency preserving and lossless join B. lossless join but not dependency preserving C. not dependency preserving and not lossless join D. dependency preserving but not lossless join
31	Given the basic ER and relational models, which of the following is INCORRECT? A. An attributes of an entity can have more than one value B. An attribute of an entity can be composite C. In a row of a relational table, an attribute can have more than one value D. In a row of a relational table, an attribute can have exactly one value or a NULL value
32	Which of the following is TRUE? A. Every relation in BCNF is also in 3NF B. Every relation in 2NF is also in BCNF C. A relation R is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R D. No relation can be in both BCNF and 3NF
33	Which one of the following statements about normal forms is FALSE? A. BCNF is stricter than 3NF B. Lossless, dependency-preserving decomposition into BCNF is always possible C. Lossless, dependency-preserving decomposition into 3NF is always possible D. Any relation with two attributes is in BCNF
34	Consider a relation scheme R = (A, B, C, D, E, H) on which the following functional dependencies hold: {A–>B, BC–>D, E–>C, D–>A}. What are the candidate keys of R? A. AE, BE B. AE, BE, DE C. AEH, BEH, DEH D. AEH, BEH, BCH
35	How many children does a node of a binary tree have? A. 2 B. any number of children C. 0 or 1 or 2

	D. 0 or 1
36	Which matrix has most of the elements (not all) as Zero? A. Identity Matrix B. Unit Matrix C. Sparse Matrix D. Zero Matrix
37	What is the best case for linear search? A. O(nlogn) B. O(logn) C. O(n) D. O(1)
38	The C keyword 'break' cannot be simply used within _____ A. do-while B. if-else C. for D. while
39	What is the default return type if it is not specified in function definition in C? A. void B. int C. double D. short int
40	The data structure required for Breadth First Traversal on a graph is? A. Stack B. Array C. Queue D. Tree
41	Which of the following is true about peep hole optimization? A. It is one of the loop optimization techniques. B. It is one of the local optimization techniques C. It is one of the constant folding techniques D. None of the above
42	What is the output of lexical analyser? A. Syntax tree B. Set of tokens C. Set of Regular expression D. String characters

43	Which of the following data structure represents the relationship between basic block and its successor? A. Directed acyclic graph B. Hamilton graph C. Control graph D. Flow graph
44	Which of the following errors are detected by the compiler? A. Neither logical nor grammatical B. Only grammatical error C. Only logical error D. Both grammatical and logical error
45	Which of the following is the primary function of semantic analysis phase? A. Symbol Table B. Type checking C. YACC D. LEX
46	Which of the following is related to the canonical collection of LR(0) item. A. COMPUTE B. FIRST C. FOLLOW D. GOTO
47	Which of the following is true about top down parser? A. It parses using left most derivation in reverse B. It parses using left most derivation C. It parses using right most derivation D. It parses using right most derivation in reverse

48	What is the output of this C code?
	
	#include <stdio.h>
	
	int main()
	
	{
	
	constint p;
	
	p = 4;
	
	printf("p is %d", p);
	
	return 0;
	
	}

	A. p is 4 B. Compile time error C. Run time error D. p is followed by a garbage value
49	Which classes allow primitive types to be accessed as objects? A. Storage B. Virtual C. Friend D. Wrapper
50	What defines a general set of operations that will be applied to various types of data? A. Template class B. Function template C. Class template D. Both a and c above
51	Inline functions are invoked at the time of A. Run time B. Compile time C. Depends on how it is invoked D. Both b and c above
52	The default access level assigned to members of a class is _____ A. Private B. Public C. Protected D. Needs to be assigned
53	An examination paper has 100 multiple choice questions of one mark each, with each question having four choices. Each incorrect answer fetches −0.25 mark. Suppose 200 students choose all their answers randomly with uniform probably. The sum of total expected marks obtained by all those students is A. 0 B. 2550 C. 1250 D. 2000
54	A group consists of equal number of men and women. Of this group 20% of the men and 50% of the women are unemployed. If a person is selected at random from the group, the probability of the selected person being employed is A. 0.60 B. 0.70

	C. 0.65 D. 0.75
55	The effectiveness of the cache memory is based on the property of _____. A. Locality of reference B. Memory localisation C. Memory size D. None of the above
56	The structure or format of data is called A. Syntax B. Semantics C. Struct D. None of the mentioned
57	The physical layer in a network concerns with A. process to process delivery B. bit-by-bit delivery C. application to application delivery D. none of the mentioned
58	Which one of the following is a transport layer protocol used in internet? A. TCP B. UDP C. both (a) and (b) D. none of the mentioned
59	Which of the following is a fundamental operation in relational algebra ? A. Set intersection B. Natural join C. Assignment D. Select
60	Which module gives control of the CPU to the process selected by the short-term scheduler: A. dispatcher B. interrupt C. scheduler D. none of the mentioned
61	Minimize the Boolean function $f(x_1, x_2, x_3) = \bar{x}_1 x_2 \bar{x}_3 + \bar{x}_1 \bar{x}_2 \bar{x}_3 + x_1 \bar{x}_2 \bar{x}_3 + x_1 x_2 x_3 + x_1 \bar{x}_2 x_3$

	A. $\bar{x}_1\bar{x}_3 + \bar{x}_2\bar{x}_3 + x_1x_3$ B. $x_1\bar{x}_3 + \bar{x}_2x_3 + x_1x_3$ C. $\bar{x}_1x_3 + x_2\bar{x}_3 + x_1x_3$ D. $x_1x_3 + x_2x_3 + x_1x_3$
62	Evaluate and find $(1715)_{10}=(?)_{12}$ A. BBB B. BAB C. ABB D. BAA
63	How many 4-digit telephone numbers have one or more repeated digits? A. $10^4 - {}^{10}P_2$ B. $10^4 - {}^{10}C_2$ C. $10^4 - {}^{10}P_4$ D. $10^4 - {}^{10}C_4$
64	The unit to measure the speed of a processor A. KB B. MB C. KM D. Hz
65	If A and B are matrices, then which from the following is true? A. $A + B \neq B + A$ B. $(A^t)^t \neq A$ C. $AB \neq BA$ D. all are true
66	Which gate is known as a universal gate? A. NOT gate B. AND gate

	C. NAND gate D. XOR gate
67	The 2's complement of the binary number 0.01011 is: A. 1.10101 B. 0.10101 C. 1.10100 D. 0.10100
68	Which two are valid constructors for Thread? 1. Thread(Runnable r, String name) 2. Thread() 3. Thread(int priority) 4. Thread(Runnable r, ThreadGroup g) 5. Thread(Runnable r, int priority) A. 1 and 3 B. 2 and 4 C. 1 and 2 D. 2 and 5
69	In mathematics and computer programming, which is the correct order of mathematical operators? A. Addition, Subtraction, Multiplication, Division B. Division, Multiplication, Addition, Subtraction C. Multiplication, Addition, Division, Subtraction D. Addition, Division, Modulus, Subtraction
70	Evaluate the following limit $\lim_{x \to 0} \frac{\lvert x \rvert}{x}$

	A. 1 B. -1 C.0 D. Does not exist

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M.Sc. (Computer Science)/MCA/M.Sc.(IT) –Set-1

Answer Keys

Q.No	Ans Key	Q.No	Ans Key	Q.No	Ans Key	Q.No	Ans Key
1	C	21	C	41	C	61	A
2	B	22	B	42	B	62	B
3	A	23	A	43	D	63	C
4	B	24	B	44	B	64	D
5	B	25	D	45	B	65	C
6	A	26	A	46	D	66	C
7	C	27	C	47	B	67	A
8	D	28	C	48	B	68	C
9	B	29	B	49	D	69	B
10	C	30	D	50	B	70	D
11	A	31	C	51	B		
12	A	32	A	52	A		
13	C	33	B	53	C		
14	C	34	C	54	C		
15	D	35	C	55	A		
16	C	36	C	56	A		
17	B	37	D	57	B		
18	A	38	B	58	C		
19	A	39	B	59	D		
20	B	40	C	60	A		