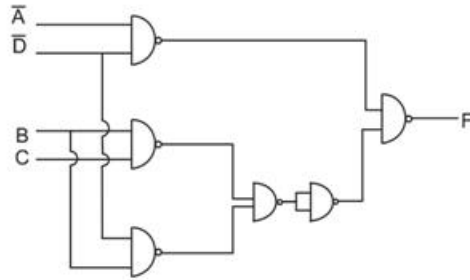


**Rajasthan Public Service Commission - 2016**  
**Paper : VPITI-Computer-Science**

Ques # :1

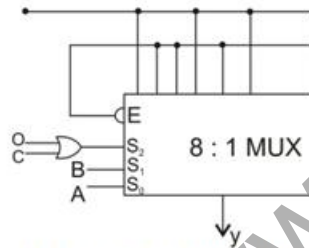
Given minimized SOP expression of output (F) of the following circuit :



- 1)  $\bar{A}B + A\bar{C}D + A\bar{B}C$
- 2)  $\bar{A}C + B\bar{C}$
- 3)  $\bar{A}\bar{D} + BC + B\bar{D}$
- 4)  $\bar{A}B + BC + C\bar{D}$

Ques # :2

Consider the circuit given below

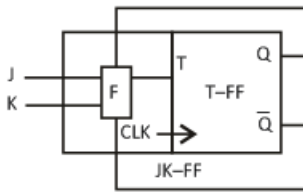


$S_2$  ,  $S_1$  and  $S_0$  are select lines and  $X_7$  to  $X_0$  are inputs lines.  $S_0$  and  $X_0$  are LSBs . The output  $y$  is :-

- 1)  $\overline{A \oplus B}$
- 2)  $A \oplus B$
- 3)  $\bar{C}(\overline{A \oplus B}) + C(A \oplus B)$
- 4) Indeterminate state

Ques # :3

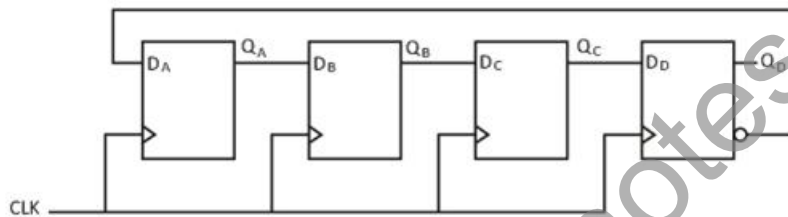
What should be the function  $f$  to make the circuit a JK-FF ?



- 1)  $JQ + K\bar{Q}$
- 2)  $\bar{J}Q + K\bar{Q}$
- 3)  $J\bar{Q} + KQ$
- 4) None of these

Ques # :4

Consider the following counter:



The modulus of the given counter is:

- 1) 16
- 2) 8
- 3) 4
- 4) 2

Ques # :5

The range of Binary integer number of  $n$  bits using signed 1's complement from is given by :-

- 1)  $+(2^{n-1} - 1)$  to  $-(2^{n-2}-1)$
- 2)  $+(2^{n+1} - 1)$  to  $-(2^{n+2}-1)$
- 3)  $+(2^{n-1} + 1)$  to  $-(2^{n+2}+1)$
- 4)  $+(2^{n-1} + 1)$  to  $-(2^{n-2}-1)$

Ques # :6

**Full adder can be implemented by using :-**

- 1) Two half adders and an OR gate.
- 2) Two full adders and an OR gate
- 3) Two half adders and an AND gate
- 4) Two full adders and an AND gate

Ques # :7

In the following truth table,  $V = 1$  if and only if the input is valid.

Inputs				Outputs		
$D_0$	$D_1$	$D_2$	$D_3$	$X_0$	$X_1$	$V$
0	0	0	0	x	x	0
1	0	0	0	0	0	1
x	1	0	0	0	1	1
x	x	1	0	1	0	1
x	x	x	1	1	1	1

What function does the truth table represent?

- 1) Priority encoder
- 2) Decoder
- 3) Multiplexer
- 4) Demultiplexer

Ques # :8

Consider the following combinational function block involving four Boolean variables  $x, y, a, b$ , where  $x, a, b$  are inputs and  $y$  is the output.

```
f (x, y, a, b)
{
  if (x is 1) y = a;
  else y = b;
}
```

Which one of the following digital logic blocks is the most suitable for implementing this function?

- 1) Full adder
- 2) Priority encoder
- 3) Multiplexer
- 4) Flip-flop

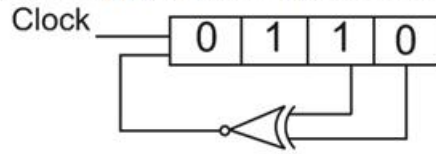
Ques # :9

**The decoded instruction is stored in \_\_\_\_\_ .**

- 1) IR
- 2) PC
- 3) Registers
- 4) MDR

Ques # :10

The initial content of a 4 – bit serial in parallel out shift counter is 0110. The content of the shift register after applying 4 clock pulses will be



- 1) 1001
- 2) 0100
- 3) 0110
- 4) 1010

Ques # :11

$(A' + C) (A' + C') (A' + B + C'D)$  is independent of

- 1) A
- 2) B,C,D
- 3) A,B,C
- 4) A,B,C,D

Ques # :12

Consider a 4-way set associative cache consisting of 128 lines with a line size of 64 words. The CPU generates a 20-bit address of a word in main memory. The number of bits in the TAG, LINE and WORD fields are respectively :-

- 1) 9,6,5
- 2) 7,7,6
- 3) 7,5,8
- 4) 9,5,6

Ques # :13

Consider a disk pack with 16 surfaces, 128 tracks per surface and 256 sectors per track. 512 bytes of data are stored in a bit serial manner in a sector. The capacity of the disk pack and the number of bits required to specify a particular sector in the disk are respectively:

- 1) 256 Mbyte, 19 bits
- 2) 256 Mbyte, 28 bits
- 3) 512 Mbyte, 20 bits
- 4) 64 Gbyte, 28 bit

Ques # :14

A CPU has a five-stage pipeline and runs at 1 GHz frequency. Instruction fetch happens in the first stage of the pipeline. A conditional branch instruction computes the target address and evaluates the condition in the third stage of the pipeline. The processor stops fetching new instructions following a conditional branch until the branch outcome is known. A program executes  $10^9$  instructions out of which 20% are conditional branches. If each instruction takes one cycle to complete on average, the total execution time of the program is:

- 1) 1.0 second
  - 2) 1.2 seconds
  - 3) 1.4 seconds
  - 4) 1.6 seconds
- 

Ques # :15

**Which one of the following is true for a CPU having a single interrupt request line and a single interrupt grant line?**

- 1) Neither vectored interrupt nor multiple interrupting devices are possible
  - 2) Vectored interrupts are not possible but multiple interrupting devices are possible.
  - 3) Vectored interrupts and multiple interrupting devices are both possible
  - 4) Vectored interrupt is possible but multiple interrupting devices are not possible
- 

Ques # :16

**The instruction, Add #45,R1 does :**

- 1) Adds the value of 45 to the address of R1 and stores 45 in that address
  - 2) Adds 45 to the value of R1 and stores it in R1
  - 3) Finds the memory location 45 and adds that content to that of R1
  - 4) None of these
- 

Ques # :17

**A set associative cache consists of 64 lines, or slots divided into four lines sets. Main memory consists of 4k blocks of 128 words each. What are the number of the bits of TAG, Set offset and word offset respectively ?**

- 1) 8,4,7
  - 2) 7,5,7
  - 3) 7,5,8
  - 4) 8,5,6
- 

Ques # :18

**What is the source and destination addressing mode for the instruction ?**

**ADD Ax , [500] ;  
Ax ← M [500] ;**

- 1) Immediate memory direct
  - 2) Memory direct & Register indirect
  - 3) Memory direct & Register direct
  - 4) Memory indirect & Register indirect
- 

Ques # :19

**Consider a cache with 40 bit address 16384 blocks and block size is 256 byte Tags are 19 bit long. How many sets are there and what is the associating of a cache ?**

- 1) 1024 sets, 8 way set associative
  - 2) 4096 sets, 4 way set associative
  - 3) 8192 sets, 2 way set associative time
  - 4) None of these
-

---

Ques # :20

**What is the address of the operand in a computation-type instruction:-**

- 1) Direct Address
- 2) Relative Address
- 3) Effective Address
- 4) Register Address

---

Ques # :21

**What does the following C-statement declare? `int (* f)(int *)` ;**

- 1) A function that takes an integer pointer as argument and returns an integer
- 2) A function that takes an integer as argument and returns an integer pointer
- 3) A pointer to a function that takes an integer pointer as argument and returns an integer
- 4) A function that takes an integer pointer as argument and returns a function pointer

---

Ques # :22

**A program P reads in 500 integers in the range [0,100] representing the scores of 500 students. It then prints the frequency of each score above 50. What would be the best way for P to store the frequencies?**

- 1) An array of 50 numbers
- 2) An array of 100 numbers
- 3) An array of 500 numbers
- 4) A dynamically allocated array of 550 numbers

---

Ques # :23

**What is the output of following program? `#include <stdio.h> void fun(int x) { x = 30; } int main() { int y = 20; fun(y); printf("%d", y); return 0; }`**

- 1) 30
- 2) 20
- 3) Compiler Error
- 4) Runtime Error

---

Ques # :24

**In below program, what would you put in place of “?” to print “Quiz”? `#include <stdio.h> int main() { chararr[ ] = "GatesQuiz"; printf("%s", ?); return 0; }`**

- 1) arr
- 2) (arr+5)
- 3) (arr+4)
- 4) Not possible

---

Ques # :25

**Consider the following C program: `#include <stdio.h> int main() { static int a[ ] = {10, 20, 30, 40, 50}; static int *p[ ] = {a, a+3, a+4, a+1, a+2}; int **ptr = p; ptr++; printf("%d%d", ptr-p, **ptr); }` The output of the program is :-**

- 1) 135
- 2) 140
- 3) 150
- 4) 120

Ques # :26

Consider the following C program `void abc (int, int *, int *) ; void main ( ) { int p = 4, q = 7, r = 5; abc (p, sq, sr) ; printf ( “%d %d %d”, p, q, r) ; P = 5; abc (p, &q, &r) ; printf (“%d %d %d” p,q,r) ; } void abc (int x, int*y, int*z) { While (x > 0) { If (x % 2 == 0) *y = *y + *z ; else *y = *y - *z ; x _____ ; } What is the output of the above program ?`

- 1) 4 7 5 2 1
- 2) 4 7 5 2 5
- 3) 4 8 5 2 5
- 4) 4 7 4 5 2 4

Ques # :27

**The reason for using pointers in a C-program is**

- 1) Pointers allow different functions to share and modify their local variables
- 2) To pass large structures so that complete copy of the structure can be avoided.
- 3) Pointers enable complex “linked” data structures like linked lists and binary trees.
- 4) All of these

Ques # :28

**Consider the following two C lines: `int var1; extern int var2;` Which of the following statements is correct?**

- 1) Both statements only declare variables, don't define them.
- 2) First statement declares and defines var1, but second statement only declares var2
- 3) Both statements declare define variables var1 and var2
- 4) None of these

Ques # :29

**What is the output of the following program ? `#include <stdio.h> int main() { int i; for (i = 1; i != 10; i += 2) printf (" GatesQuiz "); return 0; }`**

- 1) GatesQuizGatesQuizGatesQuizGatesQuiz
- 2) GatesQuizGatesQuizGatesQuiz ....infinite times
- 3) GatesQuizGatesQuizGatesQuizGatesQuiz
- 4) GatesQuizGatesQuizGatesQuizGatesQuizGatesQuizGatesQuiz

Ques # :30

**Breadth First Search of Graph, which of the following data structure is used?**

- 1) Stack
- 2) Queue
- 3) Linked list
- 4) None of these

---

Ques # :31

What is the complexity of Kruskal's algorithm for complete graph of  $n$  vertices to find minimum cost spanning tree? (if we use min heap data structure)

1)

$$\Theta(n \log n)$$

2)

$$\Theta(n^2)$$

3)

$$\Theta(n^2 \log n^2)$$

4)

$$\Theta(n)$$

---

Ques # :32

What is the complexity of the following function

$$T(n) = \begin{cases} O(1) & n = 1 \\ T(n-1) + \log n & n > 1 \end{cases}$$

1)

$$\Theta(n \log n)$$

2)

$$\Theta(n^2 \log n)$$

3)

$$\Theta((\log n)^2)$$

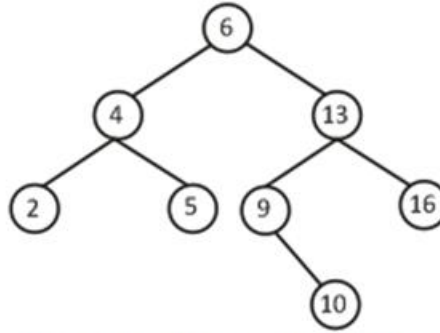
4) None of these

---

Ques # :33



3. Consider the following BST:



If the root is deleted from the given BST then what could be the BFS order of the nodes in the resulting BST, assuming that the deleted node is replaced by its inorder predecessor or inordersuccessor?

- 1) 9,4,13,10,16,25
- 2) 10,4,13,2,5,9,16
- 3) 5,13,4,2,9,10,16
- 4) 5,4,13,2,9,16,10

Ques # :34

Convert the following expression from reverse polish notation to infix notation. A B C D E + \* - /

- 1)  $A/(B - C * D + E)$
- 2)  $A/(B - C * (D + E))$
- 3)  $(A/(B*C) - (D + E))$
- 4)  $A/(B - C) * (D + E)$

Ques # :35

Consider the following statements S1, S2 and S3 : S1 : In call-by-value, anything that is passed into a function call is unchanged in the caller's scope when the function returns. S2 : In call-by-reference, a function receives implicit reference to a variable used as argument. S3 : In call-by-reference, caller is unable to see the modified variable used as argument.

- 1) S3 and S2 are true
- 2) S2 and S1 are true
- 3) S1, S2, S3 are true
- 4) S3 and S1 are true

Ques # :36

The preorder traversal sequence of a binary search tree is 30, 20, 10, 15, 25, 23, 39, 35, 42. Which one of the following is the postorder traversal sequence of the same tree?

- 1) 10, 20, 15, 23, 25, 35, 42, 39, 30
- 2) 15, 10, 25, 23, 20, 42, 35, 39, 30
- 3) 15, 20, 10, 23, 25, 42, 35, 39, 30
- 4) 15, 10, 23, 25, 20, 35, 42, 39, 30

Ques # :37

The following postfix expression with single digit operands is evaluated using a stack:  $8\ 2\ 3\ ^\ / 2\ 3\ * + 5\ 1\ * -$  Note that  $^$  is the

**exponentiation operator. The top two elements of the stack after the first \* is evaluated are:**

- 1) 6,1
  - 2) 5,7
  - 3) 3,2
  - 4) 1,5
- 

Ques # :38

**In an unweighted, undirected connected graph, the shortest path from a node S to every other node is computed most efficiently, in terms of time complexity, by**

- 1) Dijkstra's algorithm starting from S
  - 2) Warshall's algorithm
  - 3) Performing a DFS starting from S
  - 4) Performing a BFS starting from S
- 

Ques # :39

**In design phase more emphasis is given on :-**

- 1) How the system will be developed
  - 2) What the system will do
  - 3) What are the risk in developing the system
  - 4) Which computer language must be used for development
- 

Ques # :40

**Which of the following is not true in the function  $f(n) = 2^{n-4}$  ?**

- 1)  $f(n) = \Theta(2^{n+2})$
  - 2)  $f(n)$  is  $\Omega(n^{1000})$
  - 3)  $f(n) = O(2^{n-10})$
  - 4) None of these
- 

Ques # :41

Consider the following heap :



The sequence of requests for blocks of sizes 300 kB , 25 kB, 125kB, 500 kB can be satisfied if we use

- 1) Either first fit or best fit
- 2) First fit but not best fit
- 3) Best fit but not first fit
- 4) None of these

Ques # :42

Consider a set of 5 processes whose arrival time, CPU time needed and the priority are given below

Process	Arrival time	CPU	Time priority needed (in ms)
P <sub>1</sub>	0	5	5
P <sub>2</sub>	1	7	2
P <sub>3</sub>	2	3	1
P <sub>4</sub>	4	15	3
P <sub>5</sub>	5	20	4

Note: Higher number smaller priority. If the CPU scheduling policy is SJF. Average waiting (without Preemption) will be \_\_\_\_\_ ms

- 1) 9.2
- 2) 9.6
- 3) 8.8
- 4) None of these

Ques # :43

Match the definition or explanation in the right column with the left column. List – I List – II  
**A. Deadlock Prevention** P. Requires the re-cognition of unsafe state  
**B. Deadlock Recovery** Q. Pretend as if deadlock never occur  
**C. Deadlock Avoidance** R. Dissatisfy one of the necessary conditions  
**D. Deadlock Ignorance** S. Always requires the abortion of one, more executing process

- 1) A – S, B – P, C – R, D – Q
- 2) A – R, B – P, C – S, D – Q
- 3) A – R, B – S, C – P, D – Q
- 4) A – Q, B – P, C – S, D – R

---

Ques # :44

**Necessary condition for deadlock are**

- 1) Mutual Exclusion Condition
- 2) Circular Wait Condition
- 3) Non Preemption Condition
- 4) All of these

---

Ques # :45

**An operating system has 13 tape drives. There are three processes P1, P2 & P3. Maximum requirement of P1 is 11 tape drives, P2 is 5 tape drives and P3 is 8 tape drives. Currently, P1 is allocated 6 tape drives, P2 is allocated 3 tape drives and P3 is allocated 2 tape drives. Which of the following sequences represent a safe state ?**

- 1) P2 P1 P3
- 2) P2 P3 P1
- 3) P1 P2 P3
- 4) P1 P3 P2

---

Ques # :46

**To ensure the proper execution of the operating system in dual mode operation, it requires two separate modes of operation:**

- 1) Kernel mode and supervisor mode
- 2) Kernel mode and system mode
- 3) Kernel mode and privileged mode
- 4) Kernel mode and user mode

---

Ques # :47

**which one of the following circumstances the page faults occur:-**

- 1) A page fault occurs when an access to a process that has not been brought into main memory takes place
- 2) A page fault occurs when an access to a process that has been brought into main memory takes place.
- 3) A page fault occurs when an access to a page that has not been brought into main memory takes place
- 4) A page fault occurs when an access to a page that has been brought into main memory takes place

---

Ques # :48

**Consider the following statements : I. A logical address does not refer to an actual existing address in memory II. A physical address that refers to an actual physical address in memory. Which of the following is correct ?**

- 1) I
- 2) II
- 3) Both the correct
- 4) None of the statements are correct

---

Ques # :49

**Consider the methods used by processes P1 and P2 for accessing their critical sections whenever needed, as given below. The initial values of shared boolean variables S1 and S2 are randomly assigned. Method used by P1 : while(S1==S2); Critical section S1 = S2; Method used by P2 : while(S1!=S2); Critical section S2 = not(S1); Which of the following statements describes properties achieved ?**

- 1) Mutual exclusion but not progress
- 2) Progress but not mutual exclusion
- 3) Neither mutual exclusion nor progress
- 4) Both mutual exclusion and progress

Ques # :50

**In Memory management technique the system stores and retrieves data from secondary storage for use in main memory is called**

- 1) Fragmentation
- 2) Paging
- 3) Mapping
- 4) None of these

Ques # :51

**Consider three CPU-intensive processes, which require 10, 20 and 30 time units and arrive at times 0, 2 and 6, respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end.**

- 1) 1
- 2) 2
- 3) 3
- 4) 4

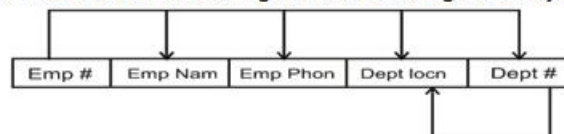
Ques # :52

**Consider the following statements about user level threads and kernel level threads. Which one of the following statements is FALSE?**

- 1) Context switch time is longer for kernel level threads than for user level threads
- 2) User level threads do not need any hardware support
- 3) Related kernel level threads can be scheduled on different processors in a multi-processor system
- 4) Blocking one kernel level thread blocks all related threads.

Ques # :53

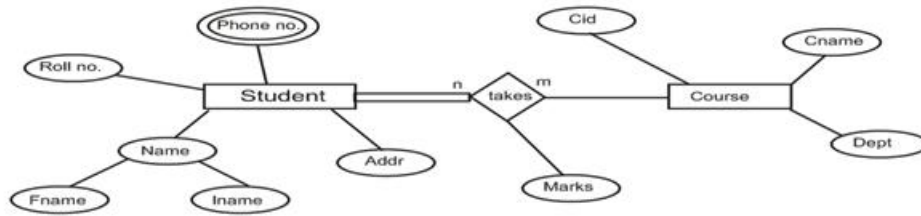
**What is the highest form of the following relation assuming it already in 1 NF ?**



- 1) 2 NF
- 2) 3 NF
- 3) BCNF
- 4) None of these

Ques # :54

Consider the following ER diagram



The number of attributes in all tables of ER diagram & total number of tables respectively are

- 1) 9,3
- 2) 9,4
- 3) 12,4
- 4) 13,4

Ques # :55

Consider the following schedules using transactions T1, T2 and T3

$\left[ \begin{array}{l} r_1 : \text{read lock} \\ w_1 : \text{write lock} \\ u_1 : \text{unlock} \end{array} \right]$

T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
r <sub>1</sub> (A) ;		r <sub>3</sub> (A) ; u <sub>3</sub> (A) ;
w <sub>1</sub> (B);	r <sub>2</sub> (A);	w <sub>3</sub> (B) ; u <sub>3</sub> (B);
u <sub>1</sub> (A) ; u <sub>1</sub> (B);	u <sub>2</sub> (A); r <sub>2</sub> (B); u <sub>2</sub> (B);	

Which of the following must be TRUE ?

- 1) S is conflict serializable as T1 → T2 → T3
- 2) S is conflict serializable as T2 → T1 → T3
- 3) S is conflict serializable as T3 → T1 → T2
- 4) S is conflict serializable as T3 → T2 → T1

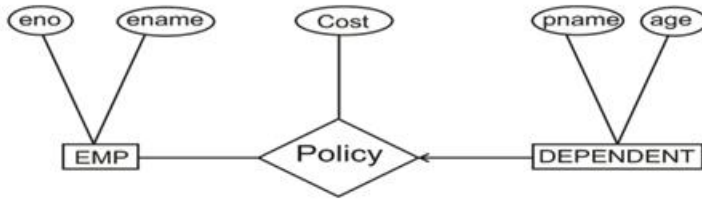
Ques # :56

Which one among the following is false ?

- 1) If a relation is in 3 NF, then it is also in 2 NF
- 2) A relation in which every key has single attribute is in 2 NF
- 3) An FD :non prime attribute → Non prime attribute is valid in 2 NF
- 4) An FD :Non prime attribute → Non prime attribute is valid in 3 NF

Ques # :57

Identify the relations for the given ER diagram –



- 1) EMP (eno, ename), DEPENDENT (Pname, age), policy (eno, pname, cost)
- 2) EMP (eno, ename), DEPENDENT (Pname, eno, age, cost)
- 3) EMP (eno, ename, pname, cost), DEPENDENT (Pname, age)
- 4) EMP \_\_\_\_\_ DEPENDENT (eno, pname, ename, age, cost)

Ques # :58

Consider the relation R ( $A_1, A_2, A_3, A_4, A_5, A_6, A_7, A_8, A_9, A_{10}$ ) with the following set of functional dependencies:

- $A_1 \rightarrow A_4 A_5$
- $A_1 A_2 \rightarrow A_3$
- $A_2 \rightarrow A_6$
- $A_6 \rightarrow A_7 A_8$
- $A_4 \rightarrow A_9 A_{10}$

Determine the highest normal form of R and the total number of extraneous attributes in F.

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

Ques # :59

**In database there are three levels of Abstraction:-**

- 1) Logical, Physical and View level
- 2) Physical, Structure and View level
- 3) Logical, Structure and View level
- 4) None of these.

Ques # :60

**Which of the join operations do not preserve non matched tuples:-**

- 1) Left outer join
- 2) Right outer join
- 3) Inner join
- 4) Natural join

Ques # :61

**Which one of the following statements about normal forms is FALSE?**

- 1) BCNF is stricter than 3NF
- 2) Lossless, dependency-preserving decomposition into 3NF is always possible
- 3) Lossless, dependency-preserving decomposition into BCNF is always possible
- 4) Any relation with two attributes is in BCNF

Ques # :62

The following functional dependencies are given:  $AB \rightarrow CD$ ,  $AF \rightarrow D$ ,  $DE \rightarrow F$ ,  $C \rightarrow G$ ,  $F \rightarrow E$ ,  $G \rightarrow A$  Which one of the following options is false?

- 1)  $\{CF\}^+ = \{ACDEFG\}$
- 2)  $\{BG\}^+ = \{ABCDG\}$
- 3)  $\{AF\}^+ = \{ACDEFG\}$
- 4)  $\{AB\}^+ = \{ABCDG\}$

Ques # :63

Fifth normal form is also called:-

- 1) Protect-join normal form
- 2) Process-join normal form
- 3) Project-join normal form
- 4) None of these

Ques # :64

Which of the following statement is correct :-

- 1) HTML have open and close ended tags
- 2) HTML have only open ended tags
- 3) HTML have only close ended tags
- 4) HTML neither have open nor close ended tags

Ques # :65

Consider a relation  $R = \{M, N, O, P, Q, R, S, T\}$  with the following set of dependencies

$MN \rightarrow O$

$M \rightarrow PQ$

$N \rightarrow R$

$R \rightarrow ST$

Next consider the following set of decompositions for the relational schema R:

$D_1 = \{R_1, R_2, R_3, R_4\}$  ;  $R_1 = \{M, N, O\}$ ,  $R_2 = \{M, P, Q\}$ ,  $R_3 = \{N, R\}$ ,  $R_4 = \{R, S, T\}$

$D_2 = \{R_1, R_2, R_3, R_4\}$  ;  $R_1 = \{M, N, O, P\}$ ,  $R_2 = \{P, Q\}$ ,  $R_3 = \{N, R\}$ ,  $R_4 = \{R, S, T\}$

Which of the above decomposition(s) has/have lossless join property ?

- 1)



- D<sub>1</sub> only
- 2) D<sub>2</sub> only
- 3) Both D<sub>1</sub> and D<sub>2</sub>
- 4) Neither D<sub>1</sub> nor D<sub>2</sub>

Ques # :66

Consider the following two schedules:

S1: r<sub>3</sub>(X); r<sub>1</sub>(X); r<sub>1</sub>(Z); r<sub>2</sub>(Z); r<sub>3</sub>(Y); W<sub>1</sub>(X); C<sub>1</sub>; W<sub>3</sub>(Y); C<sub>3</sub>; r<sub>2</sub>(Y); W<sub>2</sub>(Y); W<sub>2</sub>(Z); C<sub>2</sub>;

S2: r<sub>1</sub>(Z); r<sub>2</sub>(Z); r<sub>3</sub>(Y); r<sub>1</sub>(X); r<sub>3</sub>(X); W<sub>1</sub>(X); W<sub>3</sub>(Y); r<sub>2</sub>(Y); W<sub>2</sub>(Y); W<sub>2</sub>(Z); C<sub>1</sub>; C<sub>2</sub>; C<sub>3</sub>;

Which of the following is true regarding above schedules?

- 1) S1: Conflict serializable, recoverable and cascadeless S2: Conflict serializable, neither recoverable nor cascadeless
- 2) S1: Conflict serializable, recoverable and cascadeless S2: Not conflict serializable, recoverable but not cascadeless
- 3) S1: Conflict serializable but neither recoverable nor cascadeless S2: Not conflict serializable
- 4) S1: Not conflict serializable but is recoverable and cascadeless S2: Conflict serializable and cascadeless but not recoverable

Ques # :67

“Spiral model is an incremental model”. How long the spiral will continue?

- 1) Until the system (or software) retires
- 2) Up to β-testing
- 3) When rest analysis is completed
- 4) None of these

Ques # :68

What does CASE Tool mean:-

- 1) Tools used for analysis and design only
- 2) Any computer based tool for software planning , development and evolution
- 3) Any tool used for case study only
- 4) Tools for testing the software

Ques # :69

Which of the following is an advantage of waterfall model ?

- 1) The model assume stage rigidity
- 2) Enforced disciplined approach
- 3) The model makes no allowance for prototyping
- 4) Relegating maintenance is limited to minor changes

Ques # :70

**Which of the following is not a COCOMO-I MODEL ?**

- 1) The early prototyping model
  - 2) The early design model
  - 3) The early testing model
  - 4) The post-architectural model
- 

Ques # :71

**Waterfall model is not suitable for:-**

- 1) Complex project
  - 2) Small project
  - 3) Accommodating project
  - 4) None of these
- 

Ques # :72

**The following are the two main approaches to designing black box test cases :-**

- 1) Equivalence class partitioning and Coincident object analysis
  - 2) Equivalence class partitioning and Boundary value analysis
  - 3) Boundary value analysis and Partitioning analysis
  - 4) None of these
- 

Ques # :73

**Consider the following statements with respect to coding phase: I. Verification: It is the process of determining whether the output of one phase of software development conforms to that of its previous phase II. Validation: It is the process of determining whether a fully developed system conforms to its requirements specification. Which of the following is correct ?**

- 1) I
  - 2) II
  - 3) Both are correct
  - 4) None of the statements are correct
- 

Ques # :74

**Actual programming of software code is done during the \_\_\_\_\_ step in the SDLC.**

- 1) Maintenance and Evaluation
  - 2) Design
  - 3) Analysis
  - 4) Development and Documentation
- 

Ques # :75

**Identify the correct statement with respect to Evolutionary development:-**

- 1) Evolutionary development usually has two flavors; exploratory development, and throw-away prototyping
- 2) Very large projects are usually done using evolutionary development based approach`
- 3) It facilitates easy project management, through the high volume of documentation it generates
- 4) Sometimes the construction of a throw-away prototype is not followed by a re- implementation of the software system using a more

structured approach

---

Ques # :76

**Determine the maximum sender window size for data transmission using 40 back N protocol with “N” is the maximum sequence Number:-**

- 1)  $2^n - 1$
- 2) N - 1
- 3) N + 1
- 4) None of these

---

Ques # :77

**An organization has class C and wants to subnet the network to 10 additional subnets and 10 hosts per subnet. The subnet mask would be :-**

- 1) 255.255.255.192
- 2) 255.255.255.240
- 3) 255.255.255.248
- 4) None of these

---

Ques # :78

**An organization has a class (network of 192.84.7.0. It is sub netted with a subnet mask of 255.255.255.248. What is Broadcast address of Last but one sub network ?**

- 1) 192.84.7.240
- 2) 192.84.7.248
- 3) 192.84.7.255
- 4) 192.84.7.247

---

Ques # :79

**Which of the following is/are true ? I. If there are n devices connected using mesh technology. Then total number of duplex links between the devices is  $n*(n+1)/2$  II. Bus topology is easier to install than star topology III. Ring topology is more secured than mesh topology IV. Fault isolation is easier in bus topology than ring topology**

- 1) I only
- 2) II only
- 3) II, III and IV
- 4) All of the above

---

Ques # :80

**The OSI model has \_\_\_\_\_ layers and \_\_\_\_\_ ensures that all the data arrive correctly at the other end :-**

- 1) Five and Transport layer
- 2) Seven and Transport layer
- 3) Five and Session layer
- 4) Seven and Session layer

Ques # :81

**Match the following, Which device is in which layer. A. Router i Data link layer. B. Bridge ii. Data link layer. C. Repeater iii. Network layer D. Switch iv. Physical layer**

- 1) A-iii, B-i, C-iv, D-ii
- 2) A-iii, B-iv, C-i, D-ii
- 3) A-ii, B-i, C-iii, D-iv
- 4) A-ii, B-iv, C-iii, D-i

Ques # :82

**FDDI is a :-**

- 1) Ring network
- 2) Star network
- 3) Mesh network
- 4) Bus based network

Ques # :83

**There are n stations in a slotted LAN. Each station attempts to transmit with a probability p in each time slot. What is the probability that ONLY one station transmits in a given time slot?**

1)

$$np(1-p)^{n-1}$$

2)

$$(1-p)^{n-1}$$

3)

$$p(1-p)^{n-1}$$

4)

$$1 - (1-p)^{n-1}$$

Ques # :84

**Match the following: (P) SMTP (1) Application layer (Q) BGP (2) Transport layer (R) TCP (3) Data link layer (S) PPP (4) Network layer (5) Physical layer**

- 1) P - 2, Q - 1, R - 3, S - 5
- 2) P - 1, Q - 4, R - 2, S - 3
- 3) P - 1, Q - 4, R - 2, S - 5
- 4) P - 2, Q - 4, R - 1, S - 3

Ques # :85

**The address resolution protocol (ARP) is used for :-**

- 1) Finding the IP address from the DNS

- 2) Finding the IP address of the default gateway
- 3) Finding the IP address that corresponds to a MAC address
- 4) Finding the MAC address that corresponds to an IP address

---

Ques # :86

**In a network of LANs connected by bridges, packets are sent from one LAN to another through intermediate bridges. Since more than one path may exist between two LANs, packets may have to be routed through multiple bridges. Why is the spanning tree algorithm used for bridge-routing?**

- 1) For shortest path routing between LANs
- 2) For avoiding loops in the routing paths
- 3) For fault tolerance
- 4) For minimizing collisions

---

Ques # :87

**Ethernet when Manchester encoding is used, the bit rate is:**

- 1) Half the baud rate
- 2) Twice the baud rate
- 3) Same as the baud rate
- 4) None of these

---

Ques # :88

**Consider the following IP address with corresponding subnet Mask : IP address = 172.60.48.20 Subnet Mask = 255.255.224.0 Find the range of assigned IP address on the subnet on which the host belongs ?**

- 1) 172.60.32.0 – 172.60.63.255
- 2) 172.60.32.1 – 172.60.64.255
- 3) 172.60.32.1 – 172.60.63.254
- 4) 172.60.32.0 – 172.60.64.254

---

Ques # :89

**Consider the network with subnet mask 152.208.0.0/13. Determine the address of the last host in this network:-**

- 1) 152.223.255.254
- 2) 152.215.254.254
- 3) 152.215.255.255
- 4) 152.215.255.254

---

Ques # :90

**A file of size 2000KB is to be sent from station A to station B through a link. The RTT is 200ms and size of packet is 1KB. Link bandwidth is infinite which implies that the transmit time of a packet is nearby zero. Initially 3xRTT time is taken for 'handshaking' before data is sent. Packets are sent in a special way, like one packet is sent during the first RTT, two packets are sent during the second RTT, four packets are sent during the third RTT and so on. What will be the total time required to transfer the file?**

- 1) 2.4s
- 2) 2.5s
- 3) 2.6s
- 4) 2.7s

---

Ques # :91

**What is the correct HTML for adding a background colour ?**

- 1) <background> yellow </background>
- 2) <body style = "background-color : yellow">
- 3) <body bgcolor = "yellow">
- 4) <body background = "s.gif">

---

Ques # :92

**HTML stands for :-**

- 1) Hyper Text Markup Language
- 2) Hyper Text Makeup Language
- 3) Hide Text Markup Language
- 4) None of these

---

Ques # :93

**What is the correct HTML hyperlink ?**

- 1) <a>http : //www.google.com</a>
- 2) <a href = "http : //www.google.com"> My google</a>
- 3) <a url = "http : //www.google.com"> My google</a>
- 4) <a name = "http : //www.google.com">google.com </a>

---

Ques # :94

**How can we make an email link in HTML:-**

- 1) <a href = "mailto : abc@xyz">
- 2) <mail <href = "abc@xyz">
- 3) <mail>abc@xyz</mail>
- 4) <a href // "xyz@abc">

---

Ques # :95

**XPATH used :-**

- 1) To address your document by specifying a lotion path
- 2) To address the server
- 3) To store the IP address of the server
- 4) None of these

---

Ques # :96

**How many root element can an XML document have:-**

- 1) One
- 2) Two
- 3) Three

4) None of these

---

Ques # :97

**Can XML be used as a database:-**

- 1) Yes, it can be
  - 2) No, it can't be
  - 3) XML is not a database, it is a language
  - 4) None of these
- 

Ques # :98

**JavaScript can be implemented using the tag:-**

- 1) <jscript>... </jscript>
  - 2) <script>... </script>
  - 3) <java-script>... </java-script>
  - 4) All of these
- 

Ques # :99

**which section of Html document the JavaScript can be implemented :-**

- 1) Head Section
  - 2) Body Section
  - 3) Both Head Section and Body Section
  - 4) None of these
- 

Ques # :100

**The difference between PHP \$\_GET and \$\_POST variables is :-**

- 1) Variables sent with \$\_GET are not shown in the URL
  - 2) Variables sent with \$\_POST are not shown in the URL
  - 3) Variables cannot be sent with \$\_POST
  - 4) Variables cannot be sent with \$\_GET
-

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Exam Date 14-02-2016				
Key Issue Date 23-02-2016				
SET_A	RES		SET_A	RES
1	3		51	2
2	3		52	3
3	3		53	1
4	2		54	3
5	1		55	3
6	1		56	4
7	1		57	2
8	3		58	1
9	1		59	1
10	4		60	3
11	2		61	3
12	3		62	3
13	1		63	3
14	2		64	1
15	2		65	1
16	2		66	1
17	1		67	1
18	3		68	2
19	3		69	2
20	3		70	3
21	3		71	3
22	1		72	2
23	2		73	3
24	2		74	4
25	2		75	1
26	2		76	4
27	4		77	2
28	2		78	4
29	2		79	2
30	2		80	2
31	3		81	1
32	4		82	1
33	4		83	2
34	2		84	1
35	2		85	4
36	4		86	2
37	4		87	1
38	3		88	3
39	1		89	4
40	4		90	4
41	1		91	3
42	1		92	1
43	3		93	2
44	4		94	1
45	1		95	1
46	4		96	1
47	3		97	1
48	3		98	2
49	4		99	3
50	2		100	2

\* Means deleted