Computer Science Engineering Sample Papers

1 The address resolution protocol (ARP) is used for
A) Finding the IP address from the DNS
B) Finding the IP address of the default gateway
C) Finding the IP address that corresponds to a MAC address
D) Finding the MAC address that corresponds to an IP address
Answer : (D)

2 Consider the following relation schema pertaining to a students database:
Student (rollno, name, address)
Enroll (rollno, courseno, coursename)
where the primary keys are shown underlined. The number of tuples in the Student and Enroll tables are 120 and 8 respectively. What are the maximum and minimum number of tuples that can be present in (Student * Enroll), where '*'denotes natural join?
A) 8, 8
B) 120, 8
C) 960, 8
D) 960, 120
Answer : (C)

3 Consider a direct mapped cache of size 32 KB with block size 32 bytes. The CPU generates 32 bit addresses. The number of bits needed for cache indexing and the number of tag bits are respectively
A) 10, 17
B) 10, 22
C) 15, 17
D) 5, 17
Answer : (A)

4 The goal of structured programming is to
A) have well indented programs
B) be able to infer the flow of control from the compiled code
C) be able to infer the flow of control from the program text
D) avoid the use of GOTO statements
Answer : (C)

5 The tightest lower bound on the number of comparisons, in the worst ease, for comparison-based sorting is of the order of
A) n
B) n^2
C) $n \log n$
D) $n \log^2 n$
Answer : (B)

6 Let G be a simple graph with 20 vertices and 100 edges. The size of the minimum

vertex cover of G is 8. Then, the size of the maximum independent set of G is
A) 12
B) 8
C) Less than 8
D) More than 12
Answer : (A)

7 WA and B are the only two stations on an Ethernet. Each has a steady queue of frames to send. Both A and B attempt to transmit a frame, collide, and A wins the first backoff race. At the end of this successful transmission by A, both A and B attempt to transmit and collide. The probability that A wins the second backoff race is
A) 0.5
B) 0.625
C) 0.75
D) 1.0
Answer : (A)

8 Let A be a sequence of 8 distinct integers sorted in ascending order. How many distinct pairs of sequences, B and C are there such that (i) each is sorted in ascending order, (ii) B has 5 and C has 3 elements, and (iii) the result of merging B and C gives A?
A) 2
B) 30
C) 56
D) 256
Answer : (D)

9 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?
A) For shortest path routing between LANs
B) For avoiding loops in the routing paths
C) For fault tolerance
D) For minimizing collisions
Answer : (B)

10 A Priority-Queue is implemented as a Max-Heap. Initially, it has 5 elements. The level-order traversal of the heap is given below: 10, 8,5,3,2 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
A) 10,8,7,5,3,2,1
B) 10,8,7,2,3,1,5
C) 10,8,7,1,2,3,5
D) 10,8,7,3,2,1,5

Answer : (D)

11 An organization has a class B network and wishes to form subnets for 64 departments. The subnet mask would be

A) 255.255.0.0
B) 255.255.64.0
C) 255.255.128.0
D) 255.255.252.0

Answer : (D)

12 Suppose the round trip propagation delay for a 10 Mbps Ethernet having 48-bit jamming signal is 46.4 ms. The minimum frame size is:

A) 94
B) 416
C) 464
D) 512

Answer : (C)