

## Information Technology

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**1 A subnet has been assigned a subnet mask of 255.255.255.192. What is the maximum number of hosts that can belong to this subnet?**

- A) 14
- B) 30
- C) 62
- D) 126

**Answer : (C)**

**2 Which one of the following is NOT shared by the threads of the same process ?**

- A) Stack
- B) Address Space
- C) File Descriptor Table
- D) Message Queue

**Answer : (A)**

**3 Let G be a weighted undirected graph and e be an edge with maximum weight in G. Suppose there is a minimum weight spanning tree in G containing the edge e. Which of the following statements is always TRUE?**

- A) There exists a cutset in G having all edges of maximum weight.
- B) There exists a cycle in G having all edges of maximum weight.
- C) Edge e cannot be contained in a cycle.
- D) All edges in G have the same weight.

**Answer : (C)**

**4 A software organization has been assessed at SEI CMM Level 4. Which of the following does the organization need to practice beside Process Change Management and Technology Change Management in order to achieve Level 5 ?**

- A) Defect Detection
- B) Defect Prevention
- C) Defect Isolation
- D) Defect Propagation

**Answer : (B)**

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**5 Suppose that two parties A and B wish to setup a common secret key (D-H key) between themselves using the Diffie-Hellman key exchange technique. They agree on 7 as the modulus and 3 as the primitive root. Party A chooses 2 and party B chooses 5 as their respective secrets. Their D-H key is**

- A) 3
- B) 4
- C) 5
- D) 6

**Answer : (C)**

**6 Consider the following message  $M = 1010001101$ . The cyclic redundancy check (CRC) for this message using the divisor polynomial  $x^5 + x^4 + x^2 + 1$  is :**

- A) 01110
- B) 01011
- C) 10101
- D) 10110

**Answer : (C)**

**7 Which of the following statements is FALSE regarding a bridge**

- A) Bridge is a layer 2 device
- B) Bridge reduces collision domain
- C) Bridge is used to connect two or more LAN segments
- D) Bridge reduces broadcast domain

**Answer : (D)**

**8 What is the availability of a software with the following reliability figures?**

**Mean Time Between Failure (MTBF) = 25 days**

**Mean Time To Repair (MTTR) = 6 hours**

- A) 1%
- B) 24%
- C) 99%
- D) 99.009%

**Answer : (B)**

**9 A channel has a bit rate of 4 kbps and one-way propagation delay of 20 ms. The channel uses stop and wait protocol. The transmission time of the acknowledgement frame is negligible. To get a channel efficiency of at least 50%, the minimum frame size should be**

- A) 80 bytes
- B) 80 bits
- C) 160 bytes
- D) 160 bits

**Answer : (D)**

**10 In a depth-first traversal of a graph G with n vertices, k edges are marked as tree edges. The number of connected components in G is**

- A) k
- B) k+1
- C) n-k-1
- D) n-k

**Answer : (C)**

**11 Which of the following statements is TRUE about CSMA/CD**

- A) IEEE 802.11 wireless LAN runs CSMA/CD protocol
- B) Ethernet is not based on CSMA/CD protocol
- C) CSMA/CD is not suitable for a high propagation delay network like satellite network
- D) There is no contention in a CSMA/CD network

**Answer : (C)**

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12 Which one of the following regular expressions is NOT equivalent to the regular expression  $(a + b + c)^*$  ?

A)  $(a^* + b^* + c^*)^*$

B)  $(a^*b^*c^*)^*$

C)  $((ab)^* + c^*)^*$

D)  $(a^*b^* + c^*)^*$

Answer : (C)