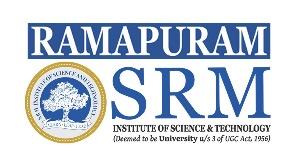
**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**

*FACULTY OF ENGINEERING AND TECHNOLOGY*

(ISO 9001 – 2008 CERTIFIED)

RAMAPURAM CAMPUS – CHENNAI 600 089

***Question Bank - 18CSS202J – Computer Communications***

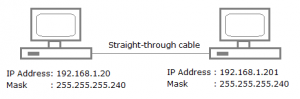
**Unit 2**

**Part – A - Multiple Choice Questions**

**Level of Understanding: *Easy***

1. Which of the following is not applicable for IP?  
   a) Error reporting  
   b) Handle addressing conventions  
   c) Datagram format  
   d) Packet handling conventions  
   Answer: a  
   Explanation: Error reporting is handled by ICMP.
2. Which of the following field in IPv4 datagram is not related to fragmentation?  
   a) Flags  
   b) Offset  
   c) TOS  
   d) Identifier  
   Answer: c  
   Explanation: TOS-type of service identifies the type of packets.
3. The TTL field has value 10. How many routers (max) can process this datagram?  
   a) 11  
   b) 5  
   c) 10  
   d) 1  
   Answer: c  
   Explanation: TTL field is decremented by one each time the datagram is processed by a router.
4. The value in protocol field is 17, the transport layer protocol used is \_\_\_\_\_\_\_\_\_\_\_\_\_  
   a) TCP  
   b) UDP  
   c) Either of the mentioned  
   d) None of the mentioned  
   Answer: b  
   Explanation: For TCP it is 6.
5. The data field can carry which of the following?  
   a) TCP segemnt  
   b) UDP segment  
   c) ICMP messages  
   d) None of the mentioned  
   Answer: c  
   Explanation: Data field usually has tranaport layer segment, but it can also carry ICMP messages.
6. What should be the flag value to indicate the last fragment?  
   a) 0  
   b) 1  
   c) TTl value  
   d) None of the mentioned  
   Answer: a  
   In classless addressing, there are no classes but addresses are still granted in  
   a) IPs  
   b) Blocks  
   c) Codes  
   d) Sizes  
   Answer: b  
   Explanation: In classless addressing, there are no classes but addresses are still granted in blocks.
7. In IPv4 Addresses, classful addressing is replaced with  
   a) Classless Addressing  
   b) Classful Addressing  
   c) Classful Advertising  
   d) Classless Advertising  
   Answer: a  
   Explanation: Classful addressing is replaced with classless addressing.
8. First address in a block is used as network address that represents the  
   a) Class Network  
   b) Entity  
   c) Organization  
   d) Codes  
   Answer: c  
   Explanation: First address in a block is used as network address that represents the organization.
9. In classful addressing, a large part of available addresses are  
   a) Organized  
   b) Blocked  
   c) Wasted  
   d) Communicated  
   Answer: c  
   Explanation: In classful addressing, a large part of available addresses are wasted.
10. Network addresses are very important concepts of  
    a) Routing  
    b) Mask  
    c) IP Addressing  
    d) Classless Addressing  
    Answer: c  
    Explanation: Network addresses are very important concepts of IP addressing.
11. Which of this is not a class of IP address?  
    a) ClassE  
    b) ClassC  
    c) ClassD  
    d) ClassF  
    Answer: d  
    Explanation: Class F is not a class of IP addressing.
12. Which of the following is the broadcast address for a Class B network ID using the default subnetmask?  
    a) 172.16.10.255  
    b) 255.255.255.255  
    c) 172.16.255.255  
    d) 172.255.255.255  
    Answer: c  
    Explanation: This address is used for broadcast the class B network purpose

**Level of Understanding: *Medium***

1. have an IP address of 172.16.13.5 with a 255.255.255.128 subnet mask. What is your class of address, subnet address, and broadcast address?  
   a) Class A, Subnet 172.16.13.0, Broadcast address 172.16.13.127  
   b) Class B, Subnet 172.16.13.0, Broadcast address 172.16.13.127  
   c) Class B, Subnet 172.16.13.0, Broadcast address 172.16.13.255  
   d) Class B, Subnet 172.16.0.0, Broadcast address 172.16.255.255  
   Answer: b  
   Explanation: Class B is the address of IP code 172.16.13.5
2. If you wanted to have 12 subnets with a Class C network ID, which subnet mask would you use?  
   a) 255.255.255.252  
   b) 255.255.255.255  
   c) 255.255.255.240  
   d) 255.255.255.248  
   Answer: c  
   Explanation: If you have eight networks and each requires 10 hosts, you would use the Class C mask of 255.255.255.240. Why? Because 240 in binary is 11110000, which means you have four subnet bits and four host bits. Using our math, we’d get the following:  
   24-2=14 subnets  
   24-2=14 hosts.
3. The combination of \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ is yoften termed the local address of the local portion of the IP address.  
   a) Network number and host number  
   b) Network number and subnet number  
   c) Subnet number and host number  
   d) Host number  
   Answer: c  
   Explanation: Sub networking is implemented for remote sensing in transparent way from that a host contains the sub network which called local operation.
4. \_\_\_\_\_\_\_\_\_ implies that all subnets obtained from the same subnet mask.  
   a) Static subnetting  
   b) Dynamic subnetting  
   c) Variable length subnetting  
   d) Both Dynamic subnetting and Variable length subnetting  
   Answer: a  
   Explanation: Static sub network
5. A network administrator is connecting hosts A and B directly through their Ethernet interfaces, as shown in the illustration. Ping attempts between the hosts are unsuccessful. What can be done to provide connectivity between the hosts?  
   [](https://www.sanfoundry.com/wp-content/uploads/2016/08/DESIGNING-SUBNET-MASKS-Q1.png)  
   1. A crossover cable should be used in place of the straight-through cable.  
   2. A rollover cable should be used in place of the straight-through cable.  
   3. The subnet masks should be set to 255.255.255.192.  
   4. A default gateway needs to be set on each host.  
   5. The subnet masks should be set to 255.255.255.0.  
   a) 1 only  
   b) 2 only  
   c) 3 and 4 only  
   d) 1 and 5 only  
   Answer: d  
   Explanation: First, if you have two hosts directly connected, as shown in the graphic, then you need a crossover cable. A straight-through cable won’t work. Second, the hosts have different masks, which puts them in different subnets. The easy solution is just to set both masks to 255.255.255.0 (/24).
6. Your router has the following IP address on Ethernet0: 172.16.2.1/23. Which of the following can be valid host IDs on the LAN interface attached to the router?  
   1. 172.16.1.100  
   2. 172.16.1.198  
   3. 172.16.2.255  
   4. 172.16.3.0  
   a) 1 only  
   b) 2 and 3 only  
   c) 3 and 4 only  
   d) None of the mentioned  
   Answer: c  
   Explanation: The router’s IP address on the E0 interface is 172.16.2.1/23, which is 255.255.254.0. This makes the third octet a block size of 2. The router’s interface is in the 2.0 subnet, and the broadcast address is 3.255 because the next subnet is 4.0. The valid host range is 2.1 through 3.254. The router is using the first valid host address in the range.
7. Which two statements describe the IP address 10.16.3.65/23?  
   1. The subnet address is 10.16.3.0 255.255.254.0.  
   2. The lowest host address in the subnet is 10.16.2.1 255.255.254.0.  
   3. The last valid host address in the subnet is 10.16.2.254 255.255.254.0.  
   4. The broadcast address of the subnet is 10.16.3.255 255.255.254.0.  
   a) 1 and 3  
   b) 2 and 4  
   c) 1, 2 and 4  
   d) 2, 3 and 4  
   Answer: b  
   Explanation: The mask 255.255.254.0 (/23) used with a Class A address means that there are 15 subnet bits and 9 host bits. The block size in the third octet is 2 (256 – 254). So this makes the subnets in the interesting octet 0, 2, 4, 6, etc., all the way to 254. The host 10.16.3.65 is in the 2.0 subnet. The next subnet is 4.0, so the broadcast address for the 2.0 subnet is 3.255. The valid host addresses are 2.1 through 3.254.
8. What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask?  
   a) 14  
   b) 15  
   c) 16  
   d) 30  
   Answer: d  
   Explanation: A /27 (255.255.255.224) is 3 bits on and 5 bits off. This provides 8 subnets, each with 30 hosts. Does it matter if this mask is used with a Class A, B, or C network address? Not at all. The number of host bits would never change.
9. . You need to subnet a network that has 5 subnets, each with at least 16 hosts. Which classful subnet mask would you use  
   a) 255.255.255.192  
   b) 255.255.255.224  
   c) 255.255.255.240  
   d) 255.255.255.248  
   Answer: b  
   Explanation: You need 5 subnets, each with at least 16 hosts. The mask 255.255.255.240 provides 16 subnets with 14 hosts-this will not work. The mask 255.255.255.224 provides 8 subnets, each with 30 hosts. This is the best answer.
10. You have a network that needs 29 subnets while maximizing the number of host addresses available on each subnet. How many bits must you borrow from the host field to provide the correct subnet mask?  
    a) 2  
    b) 3  
    c) 4  
    d) 5  
    Answer: d  
    Explanation: A 240 mask is 4 subnet bits and provides 16 subnets, each with 14 hosts. We need more subnets, so let’s add subnet bits. One more subnet bit would be a 248 mask. This provides 5 subnet bits (32 subnets) with 3 host bits (6 hosts per subnet). This is the best answer.
11. If an Ethernet port on a router were assigned an IP address of 172.16.112.1/25, what would be the valid subnet address of this host?  
    a) 172.16.112.0  
    b) 172.16.0.0  
    c) 172.16.96.0  
    d) 172.16.255.0  
    Answer: a  
    Explanation: A /25 mask is 255.255.255.128. Used with a Class B network, the third and fourth octets are used for subnetting with a total of 9 subnet bits, 8 bits in the third octet and 1 bit in the fourth octet. Since there is only 1 bit in the fourth octet, the bit is either off or on-which is a value of 0 or 128. The host in the question is in the 0 subnet, which has a broadcast address of 127 since 128 is the next subnet
12. You have an interface on a router with the IP address of 192.168.192.10/29. Including the router interface, how many hosts can have IP addresses on the LAN attached to the router interface?  
    a) 6  
    b) 8  
    c) 30  
    d) 32  
    Answer: a  
    Explanation: A /29 (255.255.255.248), regardless of the class of address, has only 3 host bits. Six hosts is the maximum number of hosts on this LAN, including the router interface.
13. What is the subnetwork number of a host with an IP address of 172.16.66.0/21?  
    a) 172.16.36.0  
    b) 172.16.48.0  
    c) 172.16.64.0  
    d) 172.16.0.0  
    Answer: c  
    Explanation: A /21 is 255.255.248.0, which means we have a block size of 8 in the third octet, so we just count by 8 until we reach 66. The subnet in this question is 64.0. The next subnet is 72.0, so the broadcast address of the 64 subnet is 71.255.
14. The network address of 172.16.0.0/19 provides how many subnets and hosts?  
    a) 7 subnets, 30 hosts each  
    b) 8 subnets, 8,190 hosts each  
    c) 8 subnets, 2,046 hosts each  
    d) 7 subnets, 2,046 hosts each  
    Answer: b  
    Explanation: A CIDR address of /19 is 255.255.224.0. This is a Class B address, so that is only 3 subnet bits, but it provides 13 host bits, or 8 subnets, each with 8,190 hosts.
15. Select the size of IP address in IPv4
16. 4bytes
17. b) 128bits
18. c) 8bytes
19. d) 100bits

Answer: a

1. Name the important concept in network addresses?

a) Routing

b) Mask

c) IP Addressing

d) Classless Addressing

29. The maximum number of IP addresses that can be assigned to hosts on a local subnet that uses 255.255.255.224 subnet mask is

a) 14

b) 15

c) 16

d) 30

30. A is a device that forwards packets between networks by processing the routing information included in the packet.

a) bridge

b) firewall

c) router

d) hub

31. A repeater is a device that operates only in the

a) LAN

b) WAN

c)MAN

d) connector

32.Choose from the following. In classful addressing, a large part of available addresses are?  
a) Organized

b) Blocked

c) Wasted

d) Communicated

33.Select the operating layers of bridge

a) Physical & Data-link layers

b) Datalink-Network layers

c) Network & Transport layers

d) Transport & Session layers

34. ---------is the broadcast address for a Class B network ID using default subnetmask.

a) 172.16.10.255

b) 255.255.255.255

c) 172.16.255.255

d)172.255.255.255  
35. Which of the following is not a class of classful addressing  
a) Class E

b) Class C

c) Class D

d) Class F

36. Select the IP address which belongs to class A?

a)121.12.12.248

b)130.12.12.248

c)128.12.12.248

d)129.12.12.248

37.Find the device that helps to prevent congestion and data collisions

1. Switch
2. b) Hub
3. c) Gateway
4. d) Proxy Server

38.Find the device that is used to connect a number of LANs

a) Router

b) Repeater

c) Bridge

d) Switch

39.Name the concept used to divide a large IP network in smaller IP networks

a)Supernetting

b)Subnetting

c)classful addressing

d)classless addressing

The combination of and is often termed the local address of the local portion of the IP address.

a) Network and host number

b) Network and subnet number

c) Subnet and host number

d) Host number and super net number

40.Identify the class of the IP address 172.16.2.1

a) Class A

b) Class B

c) Class C

d) Class E

41.Change the binary address to dotted decimal notation 10000001 00001011 00001011 11101111

a)129.11.11.239

b)128.11.11.239

c)128.11.11.236

d)129.11.11.238

42. Select the operating layer of a hub

a) Physical layer

b) Datalink layer

c) Network layer

d**)** Transport layer

Unit 3

**Level of Understanding: *Easy***

1. If a link transmits 4000frames per second, and each slot has 8 bits, the transmission rate of circuit this TDM is

a) 32kbps

b) 500bps

c) 500kbps

d) 1500kbps

2. TDM, slots are further divided into

a) Seconds

b) Frames

c) Packets

d) segment

3. Name the polarities used in NRZ format   
a) Complete pulse duration

b) Half duration  
c) Bothe positive as well as negative value  
d) Each pulse is used for twice the duration

### 4.Select from the following. Pulse used to represent Polar NRZ

### a) High in data is represented by a positive pulse

### b) High in data is represented by a negative pulse

### c)Low in data is represented by a positive pulse

d) High in data is represented by a zero pulse

5. Polar coding is a technique in which

1. 1 is transmitted by a positive pulse and 0 is transmitted by negative pulse
2. 1 is transmitted by a positive pulse and 0 is transmitted by zero volts
3. 1 is transmitted by +V and 0 is transmitted by -V

d)1 is transmitted by -Vand 0 is transmitted by +V

6.The signal rate is also called as

a)Baud b)bit c)signal d)byte

7. In a scheme, all the signal levels are on one side of the time axis, either above or below

a)unipolar b)Polar c)bipolar d)Nonpolar

8. Which of the following is not a guided media?  
a) Fiber optical cable  
b) Coaxial cable  
c) Wireless LAN  
d) Copper wire

9.List the number of concentric copper conductors in coaxial cable   
a) 1 b) 2 c) 3 d) 4

10.Name the conversion in Delta modulation

a) Analog to digital b)Digital to analog c) ADC and DAC

d) Analog to Discrete

11.Which of the following modulation technique is used in most modern modems for digital to analog modulation?

1. ASK b) FSK c)PSK d)QAM

12.Tell the type of modulation used in OOK

1. FSK b)PSK c)ASK d)QAM

13.The idea of RZ and the idea of NRZ-L are combined into the

a)Manchester b)differential Manchester

c) synchronisation d)Integration

13.The minimum bandwidth of Manchester and differential Manchester is that of NRZ

a)twice

b)the same as

c)thrice

d) Half

14. PCM is an example of

a)digital to digital

b)analog to digital

c)analog to analog

d)digital to analog

15. In asynchronous transmission , the gap between bytes is

a)fixed

b)variable

c)zero

d)function of data rate

16. Find the line coding schemes whose output is represented by wide half bit pulse?

a)Bipolar RZ

b)Unipolar RZ

c)RZ-AMI

d) Manchester coding

17. Find the dimensions used in QAM

a)In phase

b) Quadrature

c)In phase & Quadrature

d) Out Phase

18. The sharing of a medium and its link by two or more devices is called \_\_\_\_\_\_\_\_\_  
a) Fully duplexing  
b) Multiplexing  
c) Both Fully duplexing and Multiplexing  
d) Duplexing

19. Which multiplexing technique transmits digital signals?  
a) FDM  
**b) TDM**c) WDM  
d) FDM & WDM

20.If there are n signal sources of same data rate than TDM link has \_\_\_\_\_\_\_ slots.  
**a) n**  
b) n/2  
c) n\*2  
d) 2n

21.If link transmits 4000frames per second, and each slot has 8 bits, the transmission rate of circuit this TDM is \_\_\_\_\_\_\_\_\_  
**a) 32kbps**b) 500bps  
c) 500kbps  
d) None of the mentioned

22,The state when dedicated signals are idle are called \_\_\_\_\_\_\_\_\_\_  
a) Death period  
b) Poison period  
**c) Silent period**d) None of the mentioned

*23.In TDM, the transmission rate of the multiplexed path is usually \_\_\_\_\_\_\_ the sum of the transmission rates of the signal sources.****a) Greater than****b) Lesser than  
c) Equal to  
d) Equal to or greater than*

24. In uniform quantization process

A. The step size remains same

B. Step size varies according to the values of the input signal

C. The quantizer has linear characteristics

D. Both a and c are correct

25. The biggest disadvantages of PCM is

its inability to handle analog signals

the high error rate which its quantizing noise introduces

its incompatibility with TDM

the large bandwidths that are required for it.

26. Indicate which of the following pulse modulation systems is analog

1. PCM
2. Differential PCM
3. PWM
4. Delta modulation

27.Indicate which of the following systems is digital?

Pulse-position modulation

Pulse-code modulation

Pulse-width modulation

Pulse-frequency modulation

28.The main advantage of PCM system is

1. a lower bandwidth
2. a lower power
3. lower noise
4. None of the above

29. One of the following systems is analog –

* PCM
* delta
* differential PCM
* PAM
  1. **In polar RZ format for coding, symbol '0' is represented by**  
       
     a) Zero voltage  
     b) Negative voltage  
     c) Pulse is transmitted for half the duration  
     d) Both b) and c) are correct
  2. **In a uni-polar RZ format,**  
       
     a) The waveform has zero value for symbol '0'  
       
     b) The waveform has A volts for symbol '1'  
       
     c) The waveform has positive and negative values for '1' and '0' symbol respectively  
       
     d) Both a) and b) are correct

**Part – B (10 Marks)**

1. Explain the network address translation with neat diagram
2. Subnetting problems solved in class & PPT
3. Define the router and explain its functionalities in detail.
4. Explain the working principle and applications of hub and switch.
5. Discuss the classful addressing with relevant examples.
6. Illustrate Line coding with its types with neat diagram
7. Explain with neat sketch the unguided media of computer transmission.
8. Sketch the various guided media used for data transmission in computer networks.
9. Explain the technique used in ASK and FSK
10. Explain in detail about TDM and FDM
11. Explain Pulse code modulation and delta modulation