Sub Code/Name : 18CSS202J- Computer Communications

Year / Sem / Dept : II Year / IV / B. Tech – CSE (ALL streams)

CLA2 QUESTION BANK

PART-A (1 MARK EACH) ANSWER ALL THE QUESTIONS

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| **Q.No.** | **Questions** |
| 1. | The size of IP address in IPv4 is  a) 2 bytes b) 32 bits c) 8bytes d) 100bits |
| 2. | In IPv4 Addresses, classful addressing is replaced with  a) Classless Addressing b) Classful Addressing  c) Classful Advertising d) Classless Advertising |
| 3. | In classful addressing, a large part of available addresses is  a) Organized b) Blocked c) Wasted d) Communicated |
| 4. | Which of this is not a class of IP address?  a) Class E b) Class C c) Class D d) Class F |
| 5 | Network addresses are very important concepts of  a) Routing b) Mask c) IP Address d) Classless Address |
| 6 | Name the concept used to divide a large IP network in smaller IP networks  a) Supernetting b) Subnetting c) Classful address d) Classless address |
| 7 | Select the operating layer of a hub  a) Physical layer b) Datalink layer  c) Network layer d**)** Transport layer |
| 8 | A device that connects networks with different protocols  a) Switch b) Hub c) Gateway d) repeater |
| 9 | A device which is used to boost the signal between two cable segments is  a) Switch b) Hub c) Gateway d) repeater |
| 10 | Networking device connect one LAN to other LAN using same protocol is  a) Switch b) Hub c) Gateway d) Repeater |
| 11 | Multiplexing technique that shifts each signal to a different carrier frequency  a) FDM b) TDM c) WDM d) OFDM |
| 12 | The conversion in Delta modulation is  a) Analog to digital b) Digital to analog  c) ADC and DAC d) Analog to Discrete |
| 13 | If link transmits 4000 frames per second, and each slot has 8 bits, the transmission rate of TDM is  a) 32kbps b) 50bps c) 60kbps d) 80 kbps |
| 14 | A complex low-pass signal has a bandwidth of 200 kHz, the minimum sampling rate for this signal is  a) 100 kHz b) 200kHz c) 300kHz d) 400kHz |
| 15 | A signal is carrying data in which one data element is encoded as one signal element (r = 1). If the bit rate is 100 kbps, what is the average value of the baud rate if c is between 0 and 1?  a) 50 k baud b) 100 k baud c) 150 k baud d) 200 k baud |
| 16 | An analog signal carries 4 bits per signal element. If 1000 signal elements are sent per second, find the bit rate?  a) 4kbps b) 4Gbps c) 4Tbps d) 4Mkbps |

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| 17 | Coaxial cable consists of concentric copper conductors.  a) 1 b) 2 c) 3 d) 4 |
| 18 | Terrestrial radio channels are broadly classified into groups.  a) 1 b) 2 c) 3 d) 4 |
| 19 | 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) infinity |
| 20 | Identify the unguided media in the given options.  a) Fiber optical cable b) Coaxial cable c) Microwaves d) Copper wire |
| 21 | 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 |
| 22 | The network address of 172.16.0.0/19 provides subnets and hosts.  a) 7 subnets, 1,230 hosts each b) 8 subnets, 8,190 hosts each  c) 8 subnets, 2,046 hosts each d) 7 subnets, 2,046 hosts each |
| 23 | The size of IP address in IPv4 is  a) 4bytes b) 128bits c) 32 bits d) 100bits |
| 24 | 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 |
| 25 | A repeater is a device that operates only in the  a)LAN b) WAN c)MAN d) connector |
| 26 | \_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 |
| 27 | An IP address of 172.16.13.5 with a 255.255.255.128 subnet mask has  subnet address, and broadcast address.  a) 172.16.13.0, 172.16.13.127 b) 172.16.13.0, 172.16.13.127  c) 172.16.13.0, 172.16.13.255 d) 172.16.0.0, 172.16.255.255 |
| 28 | 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 |
| 29 | Identify the class of the IP address 172.16.2.1  a) Class A b) Class B c) Class C d) Class E |
| 30 | 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 |
| 31 | multiplexing technique transmits digital signals.  a) FDM b) TDM c) WDM d) FDM & WDM |
| 32 | 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 |
| 33 | TDM, slots are further divided into  a) Seconds b) Frames c) Packets d) segment |
| 34 | 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   1 is transmitted by -Vand 0 is transmitted by+V |
| 35 | The signal rate is also called as  a)Baud b)bit c)signal d)byte |
| 36 | In a scheme, all the signal levels are on one sideof the time axis, either above or below  a)unipolar b)Polar c)bipolar d)Nonpolar |
| 37 | The idea of RZ and the idea of NRZ-L are combined into the . a)Manchester b)differential Manchester  c) synchronisation d)Integration |
| 38 | The minimum bandwidth of Manchester and differential Manchester is that of NRZ  a)twice b)the same as c)thrice d) Half |
| 39 | PCM is an example of  a)digital to digital b)analog to digital  c)analog to analog d)digital to analog |
| 40 | In asynchronous transmission , the gap between bytes is  a)fixed b)variable c)zero d)function of data rate |
| 41 | In classless addressing, there are no classes but addresses are still granted in a) IPs b) Blocks c) Codes d) Sizes |
| 42 | The combination of \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ is often 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 |
| 43 | In classful addressing, a large part of available addresses are a) Organized b) Blocked c) Wasted d) Communicated |
| 44 | Which of this is not a class of IP address? a) ClassE b) ClassC c) ClassD d) ClassF |
| 45 | Multiplexing technique that shifts each signal to a different carrier frequency a) FDM b) TDM c) Both FDM & TDM d) CDM |

PART B (4MARKS)

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| **Q.No.** | **Questions** |
| 1. 1 | Explain the concept of dotted decimal notation in addressing. |
| 1. 2 | Draw the diagram of a three-layer device and explain it |
|  | A block of IP addresses is granted to ECE department of SRM university. One  of the IP addresses in the block is 205.16.32.36/29. Find the first address, last address and number of addresses in the block? |
|  | With the help of a diagram explain the concept of a Bipolar line coding technique. |
|  | An analog signal has a bit rate of 4000 bps and band rate of 500 baud. How many data elements are carried by each signal element? How many signal elements do we need? |
|  | Illustrate the concept of WDM with the help of a diagram. |
|  | Determine the error in the following IPv4 addresses. (i)103.57.040.71,  (ii)220.130.9.3.2, (iii)65.33.399.10, (iv)11100011.14.14.63 |
|  | Draw and explain internal structure of Router. |
|  | Write the differences between Unicast addressing mode and Broad cast  addressing mode in IPV4. |
|  | Illustrate Amplitude Shift Keying. |
|  | Explain Time Division Multiplexing with neat diagram. |
|  | A signal constitute of 1000 Hz, 1800 Hz, and 2000 Hz frequencies. Determine  the minimum sample rate required to find this information? |
|  | Mention the special classes and summarize the block of IP addresses allocated for local area networking for each class. |
|  | An analog signal has a bit rate of 4000bps and baud rate of 500 baud.How many data elements can be carried by the signal element?How many signal elements do we need? |
|  | You have an available bandwidth of 100KHz which spans from 200 to 300KHz.What are the carrier frequency and bit rate if ASK with d=1 is used for modulation? |

PART C (12 MARKS)

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| 1. 1 | Explain the network address translation with neat diagram |
|  | Determine the number of subnets and hosts per subnet possible for the network 192.168.1.0/27? List their subnet’s Nework ID,Host ID and  Broadcast ID. |
|  | Illustrate Line coding with its types with neat diagram |
|  | Explain Pulse code modulation and delta modulation |
|  | An organization is grant4ted with IP address 192.16.2.0/24. The administration wants to create 4 subnets. Calculate the following   1. Find the subnet mask 2. Number of hosts in each subnet 3. First & Last host address of each subnet 4. Network & Broadcast address of each subnet |
|  | With the help of a neat sketch explain the following network devices  Hub b) Repeaters c) Switch. |
|  | Discuss in detail about the following digital modulation technique with the help a neat sketch a) ASK b) PCM. |
|  | List the different types of guided media used in communication channel and  explain them in detail. |
|  | Mention the NRZ-L and NRZ-I using the data stream 00000000,assuming that last signal level has been positive, |
|  | Compare and Contrast TDM,FDM and WDM |