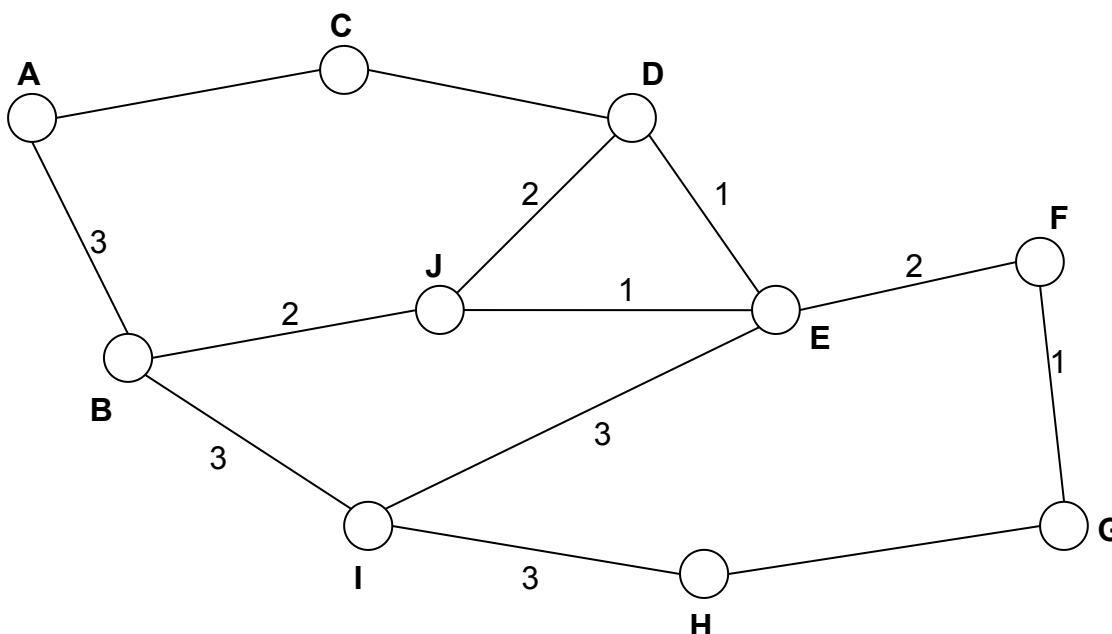**Full Marks: 30**
Time : 1 hours 40mins

Candidates are required to give their answer in their own words as far as practicable.

Attempt any five questions.

1. **a**) Describe the communication model along with block diagram. [3]
   b) What is the difference between frequency and bandwidth? [1]
   c) Differentiate between data and signal. [1]
   d) What is Piggy backing? [1]

2. a) Encode the following bit stream 100101 with [3]
      i) Manchester Encoding
      ii) ASK
   b) Make OSI?ISO reference model and write down the functions of network layer. [1+2]

3. a) What is collision ? Define CSMA/CD. What part of 802 project uses CSMA/CD? [2]
   b) How 802.4 differ from 802.5? [2]
   c) A communication system 'B' receives a transmitted message by another system 'A', which is   11000110111 as generator to calculates FCS, is the received message correct or incorrect and why? [2]

4. a) What is framing ? What happens when an ACK frame is lost in G-Back-n ARQ? [1+2]
   b) If all hosts in a class –based network begins with 192.168.0 write IP address for followings [3]
      i) Network address
      ii) Host no 5
      iii) This computer
      iv) Broadcasting in network 192.168.3.0
      v) Loop back through IP layer
      vi) Class type of this network

5. a) A TV channel has the signal with bandwidth 6.1 MHz and it is transmitted with power of 2 W. This signal has to travel through a channel, which includes an average noise of 0.1 m W. If this TV signal is digitized and sent, find out the maximum data rate of the transmitted signal.
   b) What happens when token is lost in token bus?
   c) Differentiate between Virtual circuit and Datagram. [2*3]

6. a) Difference between TPC and UDP
   b) Find the shortest route between A and G in the following network.   [2*3]

c) Define bridge, router, hub and switch.

****

TRIBHUVAN UNIVERSITY
FACULTY OFMANAGEMENT
Office of Dean
BIM 2nd Semester Examination 2002
Objective Question / ITC 214: Data Communication & Computer Network

Tick mark(√) the best answer choice. Please submit this answer sheet to the Invisilator

1. ARP request is generated any time a host tries to communicate with another host. What's the first thing ARP does when trying to resolve the IP address of a local host?
   a)   It checks the local routing table   b) It checks the ARP cache
   c)   It pings the destination address   d) It broadcasts the address on the network and waits for a reply

2. The purposes of TCP''s three-way handshake is to:
   a) Synchronize the sending and receiving of data segments
   b) Establish which host is the master and which is the slave for the duration of the session
   c) Secure a session against attack
   d) Authenticate the sender

3. To use UDP, and application must apply:
   a) The maximum data transfer rate socket number for the destination application
   b) The UDP port number and IP address of the destination application
   c) Only the IP address of the destination application
   d) The UDP port number and the size of data to be sent

4. What class of IP address does the IP address 172.16.8.1 belongs to:
   a) Class A   b) Class B   c) Class C   d) Class D

5. When would you use a default subnet mask rather than a custom subnet mask?
   a) When you want to divide your network into subnets   b) When you want a single-segment network
   c) When you are assigned a Class C or D network ID   d) When you have a heterogenous network

6. Suppose your network has four segments, a value which can be represented using three bits (that is, binary 100). What subnet mask should you use if you have been assigned the class B network ID 172.16.0.0 ?
   a)   255.255.128.0   b) 255.255.224.0   c) 255.255.255.0   d)255.255.0.0

7. Disadvantage of thin wire Ethernet is:
   a) Wire has a metal and difficult to replace
   b) If a single computer breaks down the whole network will be disrupted
   c) Transceiver is expensive
   d) Hub can burn sometimes

8. Which of the following codes are commonly used for Digital Magnetic Recording?
   a) NRZ   b) Bi-polar AMI   c) Manchester   d) HDB3

9. When the signals of different frequencies share the same transmission medium, the result may be:
   a) Inter modulation noise   b) Thermal noise   c) Impulse noise   d) Cross talk

10. UDP is a _____ protocol and is _____ than TCP.
    a) Network, better   b) Connection oriented, convenient
    c) Connectionless, faster   d) Transport, slower

11. What is the purpose of ICMP testing?
    a) Determines if messages reach their destination
    b) Makes sure that all activity on the network is being monitored
    c) Determines if the network is in privileged mode of user mode
    d) None of the above

12. TCP/IP's _____ layer corresponds to the OSI model's top three layers.
    a) Application   b) Network   c) Datalink   d) Physical

13. Which of the following are considered to be logical addresses
    a) MAC   b) Ethernet   c) IP   d) All of above

14. In mail address hello@mos.com.np what is domain name?
    a) Hello   b) mos.com.np   c) hello@mos.com.np   d) a and b

15. What are the components of a browser?
   a) Retrival method, host computer, pathname
   b) Controller, client program, interpreter
   c) Hypertext, hypermedia, HTML
   d) All of the above
16. 10 Base 2 and Base 5 have different
   a) Signal band types   b) Field on the 802.3 frame
   c) Maximum segment lengths   d) Maximum data rates
17. In token ring, when a frame reaches its destination station, which of the following occurs
   a) The messages is copied   b) Four-bit in the packet are changed
   c) The message is taken off the ring and replaced by the token   d) (a) and (b)
18. Unipolar and Polar encoding are types of _____encoding.
   a) Digital-to-Digital   b) Digital-to-Analog   c) Analog-to- Analog   d) Analog-to- Digital
19. HDLC is _____ protocol
   a) Character Oriented   b) Byte Oriented   c) Count-Oriented   d) Bit-Oriented
20. A network that contains multiple hubs is most likely configured in a _____
   a) Mesh   b) Tree   c) Bus   d) Star