MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE BACHELOR OF ARTS AND BACHELOR OF EDUCATION WITH INFORMATION TECHNOLOGY

CITY CAMPUS

UCI 102: COMPUTERR COMMUNICATIONS SYSTEMS

Date: 23rd April, 2016   Time: 2.00 - 4.00pm

INSTRUCTIONS:

- Answer ALL Questions in Section A and any other TWO in Section B.

1. The device that permits electrical digital signals to be transmitted to a serer over regular telephone lines is a
   A). multiplexer.   B). modem.   C). cluster controller.   D). front-end processor.

2. Of the following communications channels, which does not provide a physical link between terminal and computer?
   A). optical fiber   B). microwave   C). telephone lines   D). coaxial cable

3. Which best describes broadcasting?
   A. Sending a single frame to many stations at the same time
   B. Sending a single frame to all routers to simultaneously update their routing tables
   C. Sending a single frame to all routers at the same time
   D. Sending a single frame to all hubs and bridges at the same time

4. A _____ LAN allows several LANs to be connected.
   A.Backbone.   B.Wireless   C.wired   D. none of the above

5. A backbone is usually a _____.
   A.Bus   B.star   C.either (a) or (b)   D.neither (a) nor (b)

6. _____ is just a connector.
   A.An active hub   B.A passive hub   C.either (a) or (b)   D.neither (a) nor (b)

7. Transmission media are usually categorized as _____.
   A.fixed or unfixed   B.guided or unguided   C.determinate or indeterminate   D.metallic or nonmetallic

8. Transmission media lie below the _____ layer.
   A.physical   B.network   C.transport   D.application

9. Which of the following primarily uses guided media?
   A.cellular telephone system   B.local telephone system
   C.satellite communications   D.radio broadcasting

10. The inner core of an optical fiber is _____ in composition.
    A.glass or plastic   B.copper   C.bimetallic   D.liquid

11. _____ cable consists of two insulated copper wires twisted together.
    A.Coaxial   B.Fiber-optic   C.Twisted-pair   D.none of the above

12. _____ cable can carry signals of higher frequency ranges than _____ cable.
    A.Twisted-pair; fiber-optic   B.Coaxial; fiber-optic   C.Coaxial; twisted-pair   D.none of the above

13. _____ cables carry data signals in the form of light.
    A.Coaxial   B.Fiber-optic   C.Twisted-pair   D.none of the above

14. _____ media transport electromagnetic waves without the use of a physical conductor.
    A.Guided   B.Unguided   C.Either (a) or (b)   D.None of the above

15. Your company has a LAN in its downtown office and has now set up a LAN in the manufacturing plant in the suburbs. To enable everyone to share data and resources between the two LANs, what type of device(s) are needed to connect them? Choose the most correct answer.
    [A] Modem   [B] Cable   [C]Hub   [D]Router

16. Which of the following condition is used to transmit two packets over a medium at the same time?
   [A] Contention   [B] Collision   [C] Synchronous   [D]
   Asynchronous   [E] None of the above

17. In a client server model, the client machine _____
   [A] Provides information and files   [B] Asks for information   [C] Servers software files
   to other computers
   [D] Distributes data files to other computers

18. A _____ LAN allows several LANs to be connected.
   a. backbone
   b. wireless
   c. wired
   d. none of the above

19. A backbone is usually a _____.
   a. bus
   b. star
   c. either (a) or (b)
   d. neither (a) nor (b)

20. _____ is just a connector.
   a. An active hub
   b. A passive hub
   c. either (a) or (b)
   d. neither (a) nor (b)

21. Transmission media are usually categorized as _____.
   a. fixed or unfixed
   b. guided or unguided
   c. determinate or indeterminate
   d. metallic or nonmetallic

22. Transmission media lie below the _____ layer.
   a. physical
   b. network
   c. transport
   d. application

23. Which of the following primarily uses guided media?
   a. cellular telephone system
   b. local telephone system
   c. satellite communications
   d. radio broadcasting

24. The inner core of an optical fiber is _____ in composition.
   a. glass or plastic
   b. copper
   c. bimetallic
   d. liquid

25. _____ cable consists of two insulated copper wires twisted together.
   a. Coaxial
   b. Fiber-optic
   c. Twisted-pair

d. none of the above

26. _____ cable can carry signals of higher frequency ranges than _____ cable.
    a. Twisted-pair; fiber-optic
    b. Coaxial; fiber-optic
    c. Coaxial; twisted-pair
    d. none of the above

27. _____ cables carry data signals in the form of light.
    a. Coaxial
    b. Fiber-optic
    c. Twisted-pair
    d. none of the above

28. _____ media transport electromagnetic waves without the use of a physical conductor.
    a. Guided
    b. Unguided
    c. Either (a) or (b)
    d. None of the above

29. _____ are used for cellular phone, satellite, and wireless LAN communications.
    a. Radio waves
    b. Microwaves
    c. Infrared waves
    d. none of the above

30. _____ are used for short-range communications such as those between a PC and a peripheral device.
    a. Radio waves
    b. Microwaves
    c. Infrared waves
    d. none of the above

SECTION B
ANSWER ANY TWO QUESTIONS
QUESTION 2

a) When designing a network, what are the goals that a designer must achieve? (10 Marks)

b) Highlight the elements of communication. (5 marks)

c) Give a basic block diagram of a typical Communication model. (5 marks)

QUESTION 3

a) Mention any **four** manufacturers of intermediary networking devices. (4 Marks)
b) In networking systems, a strong password is one way of enhancing security. Explain any four tips that can help improve password security. (8 Marks)
c) Which are the four features that make a survivable communication system? (8 Marks)

QUESTION 4

One way of classifying networks is by topology. With the aid of a simple diagram **briefly** discuss any **five** network topologies that exist today. (20 Marks)

QUESTION 5

a) Define the following terms as pertains network performance (2 marks)
   Capacity
   Delay

b) Differentiate LAN , MAN , WAN, PAN, BAN, and IAN and give the possible areas where each of the networks is best suited.(18 marks)