



UNIVERSITY OF MORATUWA
Faculty of Information Technology

Bachelor of Information Technology (BIT)
Level 1 Semester 2 Examination - 2008
ITE1301 – Introduction to Networking

Original

Time Allowed: 3 hours

August 2008

ADDITIONAL MATERIAL

None

INSTRUCTIONS TO CANDIDATES

1. This paper contains 50 (Fifty) multiple choice questions on 7 pages (including this page).
 2. Each question has 5 choices with **one or more** correct answers.
 3. Answer **all** questions.
 4. All questions carry equal marks.
 5. There will be a penalty for incorrect responses to discourage guessing.
 6. The mark given for a question will vary from -1 (all the incorrect choices are marked & no correct choices are marked) to +1 (all the correct choices are marked & no incorrect choices are marked).
 7. Answers should be marked on the special answer sheet provided.
 8. Note that questions appear on both sides of the paper.
- If a page is not printed, please inform the supervisor immediately.

Do not turn this page until you are instructed to do so

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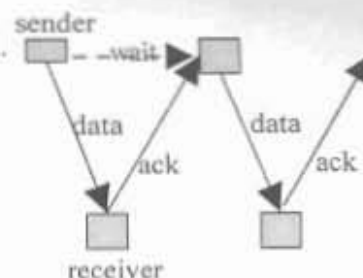
- 1) *Analog data:*
 - a) consists of bits and bytes
 - b) consists of bits only
 - c) varies continuously with time
 - d) can take any finite amplitude
 - e) is a sine wave
- 2) *Digital data:*
 - a) may be represented by discrete symbols
 - b) may take values between 0 and 255
 - c) may take values between 0 and 1
 - d) is smaller than analog data
 - e) is larger than analog data
- 3) *A signal with a frequency of 1MHz*
 - a) can carry 1 Mb/s of data
 - b) repeats itself every 1 microsecond (1 μ s)
 - c) is a square wave
 - d) is faster than a signal of 2 MHz
 - e) cannot be heard by the human ear
- 4) *A typical computer display may have a resolution of*
 - a) 320x240 pixels
 - b) 352x288 pixels
 - c) 600x400 pixels
 - d) 720x576 pixels
 - e) 1024x768 pixels
- 5) *A computer display with a resolution of 800x600 which can show 256 colours contains _____ pixels.*
 - a) 800
 - b) 600
 - c) 480,000
 - d) 3,840,000
 - e) 122,880,000
- 6) *When some images are magnified they appear jagged as seen on the image on the right. This happens because:*
 - a) the computer does not have enough memory
 - b) colour pixels are distorted when shown in black and white
 - c) letters cannot be shown in an image
 - d) each pixel is represented by a block of pixels
 - e) current video chips are not powerful enough
- 7) *_____ graphics may be magnified without showing the distortion in the image above.*
 - a) Colour
 - b) Vector
 - c) Raster
 - d) Roster
 - e) Monochrome
- 8) *Lossy compression is suitable for transmitting*
 - a) medical images
 - b) web graphics
 - c) photographs
 - d) CAD drawings
 - e) spreadsheets
- 9) *Some of the layers of the TCP/IP networking model are:*
 - a) Synchronization
 - b) Session
 - c) Application
 - d) Internet
 - e) Data Link



- 10) Select the choice(s) which match the layer number with the correct layer name.
- a) Layer 4 - Transport
 - b) Layer 6 - Synchronization
 - c) Layer 2 - IP
 - d) Layer 5 - Network
 - e) Layer 1 - Physical
- 11) The function(s) of the *data link* layer is/are:
- a) Packet Routing
 - b) Error Detection
 - c) Error Correction
 - d) Access Control
 - e) Flow Control
- 12) Ensuring that the receiver is not overloaded with data is a function of the:
- a) Physical Layer
 - b) Intermediate Layer
 - c) Transport Layer
 - d) Data Link Layer
 - e) Protocol Layer
- 13) In TCP/IP, a *port* is used to identify
- a) a host
 - b) an application
 - c) a link
 - d) a user
 - e) a direction
- 14) If ports were not used, then
- a) each server can only run one application
 - b) each client can only run one application
 - c) each client can only make one connection to a given server
 - d) each client can only connect to one server
 - e) each computer can only connect to one network
- 15) A web server normally uses port
- a) 20
 - b) 80
 - c) 200
 - d) 1024
 - e) 2048
- 16) Some Internet Service Providers (ISPs) in Sri Lanka are:
- a) Sri Lanka Internet Provider
 - b) HP Computer Services
 - c) Sri Lanka Telecom
 - d) Dialog Telekom
 - e) LK Networks
- 17) Some *broadband* internet access methods available in Sri Lanka are:
- a) ISDN
 - b) 3G
 - c) 4G
 - d) ADSL
 - e) DUN
- 18) The loss of signal strength when a signal is transmitted over a distance is known as:
- a) distortion
 - b) attenuation
 - c) perspective
 - d) dimming
 - e) exponentiation

- 19) What may happen when the received signal strength is low?
- The receiver may not be sensitive enough to pick up the signal.
 - Thermal noise may interfere with the signal
 - The data rate may increase
 - The signal-to-noise ratio may be high
 - The signal may suffer from crosstalk by adjacent channels
- 20) How can we send a digital signal for a long distance on a transmission channel with high attenuation?
- by using multi-path propagation
 - by using frequency-division multiplexing (FDM)
 - by using Zener diodes
 - by using electro-mechanical energy
 - by using repeaters at regular intervals
- 21) A Cat 5 UTP twisted pair cable has
- one pair of wires
 - two pairs of wires
 - three pairs of wires
 - four pairs of wires
 - five pairs of wires
- 22) UTP cables are popular in LANs today because they are
- inexpensive
 - faster than optical fibres
 - available in multiple thicknesses
 - flexible
 - easy to install
- 23) Some advantages of digital transmission over analog transmission are:
- it cannot be intercepted by outsiders
 - the signal is exact and can be checked for errors
 - noise and interference are easily filtered out
 - it can achieve higher data rates than with analog transmission
 - it uses co-axial cables
- 24) _____ is a high-speed serial interface suitable to connect a printer to a computer.
- ADSL
 - USB
 - RS232
 - PostScript
 - PCL5
- 25) _____ is a high-speed serial interface suitable to connect a digital video camera to a computer.
- DB-15
 - RCA
 - MPEG
 - VHS
 - Firewire

- 26) The digram on the right shows the _____ method of flow control.



- Sender-Receiver
- Stop-and-Wait
- Data-Ack
- Go-Back-N
- Go-Back-T

- 27) In the Go-Back-N method of error control, if packet p is received with an error, _____ is/are re-transmitted.
- a) only packet p
- b) only packet $p-1$
- c) packet p and up to $N-1$ subsequent packets
- d) packets $p-N$ to p
- e) packets $p-N$ to $p-1$
- 28) Data Compression
- a) can be used to increase the rate of data sent on a line
- b) utilises the redundancy in data
- c) cannot be used for images
- d) results in low quality received data
- e) reduces the load on the sender
- 29) Fax uses the run-length encoding method of data compression. If a fax image had a line segment as follows (where W=white and B=black):
- wwwwwwwwwBwwwwwwwwwwBBBwwwwwwwwwwwwwwwwwwwwwwBwwwwwwwwwwwwww
- this may be encoded as _____ using run-length encoding.
- a) PQQQPPPPQPR
- b) PQQQPPPPQPWW
- c) 12,12,24,14
- d) 1,4,19,8,3
- e) 12W1B12W3B24W1B14W
- 30) A Local-Area Network (LAN) normally covers an area of
- a) a town
- b) a country
- c) up to 2km in diameter
- d) up to 10m in diameter
- e) up to 5m in diameter
- 31) A Local-Area Network (LAN) is usually
- a) privately owned
- b) owned by the government
- c) built using microwave links
- d) built to connect two or more locations
- e) low-speed
- 32) Some technologies used in a wide-area network (WAN) is/are:
- a) DPI
- b) Frame Relay
- c) FireWire
- d) non-switched leased line
- e) ATM
- 33) A geo-stationary satellite is one which
- a) never rotates
- b) rotates very slowly
- c) rotates slower than the Earth
- d) rotates at the same speed as the Earth
- e) rotates faster than the Earth
- 34) _____ is/are problem(s) with geo-stationary satellites
- a) The delay in a signal travelling to and from the satellite
- b) The amount of sunlight received
- c) Needing to move the antenna to follow the satellite
- d) One satellite being able to cover roughly a fourth of the Earth
- e) The weakening of the signal after travelling 35,000 km

- 35) Some common LAN topologies are:
- a) Car
 - b) VAN
 - c) Bus
 - d) Star
 - e) Tree
- 36) A receiver in a LAN identifies that a frame is meant for itself by checking
- a) the destination address in the packet header
 - b) the port on which the packet is sent
 - c) the sequence number of the packet
 - d) the checksum
 - e) the frame relay
- 37) Some uses of LANs is/are to connect
- a) offices in different cities
 - b) PCs in an office
 - c) memory to a CPU
 - d) storage to servers
 - e) machines in a factory
- 38) Some criteria for selecting transmission media in a LAN are
- a) topology
 - b) capacity
 - c) liquidity
 - d) type of operating system used
 - e) ability to work in the given environment
- 39) A *Layer-3 switch*
- a) uses 3U of rack space
 - b) must be mounted above a layer 2 switch
 - c) switches packets at the data-link layer
 - d) switches packets at the network (IP) layer
 - e) switches packets in a virtual public network.
- 40) An Ethernet switch
- a) transmits a frame on all output ports
 - b) transmits two copies of each frame
 - c) uses the destination MAC address to choose the output port
 - d) is slower than a bridge
 - e) cannot handle voice over IP (VoIP).
- 41) A *Layer-3 switch* is better than a *Layer-2 switch* because it can
- a) switch packets faster
 - b) handle virtual LANs (VLANs)
 - c) handle broadcast traffic better
 - d) switch packets based on IP address
 - e) handle Gigabit Ethernet
- 42) A wireless LAN is better than a wired LAN when
- a) setting up a network in a historic building
 - b) connecting two buildings across a street within line-of-sight of each other
 - c) speed is important
 - d) data must be transmitted securely
 - e) connecting nomadic devices such as laptops

- 43) When we say "e-mail is an asynchronous application" it means that
- a) the message is sent using 7-bit codes.
 - b) the receiver does not need to read the message at the same time it is sent.
 - c) there is a delay between the sending and receiving of the message.
 - d) it runs on a high-speed LAN.
 - e) it uses a modem to transmit the message.
- 44) Some of the features of an e-mail client application are
- a) creating web pages
 - b) message preparation
 - c) storage of received messages
 - d) maintaining an address book
 - e) forwarding messages to other parties
- 45) An e-mail client may use the *POP3* protocol to
- a) send mail to a server
 - b) send mail to a client
 - c) retrieve mail from a server
 - d) forward mail from one server to another
 - e) check for spam mail
- 46) Some example(s) of a *public* e-mail service is/are:
- a) Google Gmail
 - b) SLTnet
 - c) Horde
 - d) Yahoo Mail
 - e) SWIFT
- 47) In a *client-server* application
- a) a client uses a service provided by a server
 - b) a client provides a service to a server
 - c) a client and a server are used to apply a service
 - d) a website is provided by a client
 - e) web images are provided by a client
- 48) Some of the functions of a web server are to
- a) fetch the pages referenced by hyperlinks from other servers
 - b) send web pages by e-mail
 - c) be ready to provide web pages when requested by a client
 - d) to store pages and images
 - e) to show images to the user
- 49) A web client asks for a web page from a server using a
- a) SMTP protocol
 - b) TCP connection
 - c) MIME connection
 - d) POST request
 - e) GET request
- 50) Many organizations use a web _____ server to check web pages coming from outside for viruses and malicious code
- a) https
 - b) proxy
 - c) client
 - d) Firefox
 - e) mirror

End of Paper