UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2011/2012 –2nd Year Examination – Semester 4

IT4504: Data Communication and Networks

Part 1: Multiple Choice Question Paper

22nd July, 2012
(ONE HOUR)

Important Instructions :

- The duration of the paper is **1 (one) hour.**
- The medium of instruction and questions is English.
- The paper has **25 questions** and **5 pages**.
- All questions are of the MCQ (Multiple Choice Questions) type.
- All questions should be answered.
- Each question will have 5 (five) choices with **one or more** correct answers.
- All questions will carry equal marks.
- There will be a penalty for incorrect responses to discourage guessing.
- The mark given for a question will vary from 0 to +1 (*All the correct choices are marked & no incorrect choices are marked*).
- Answers should be marked on the special answer sheet provided.
- Note that questions appear on both sides of the paper.
  If a page is not printed, please inform the supervisor immediately.
- Mark the correct choices on the question paper first and then transfer them to the given answer sheet which will be machine marked. **Please completely read and follow the instructions given on the other side of the answer sheet before you shade your correct choices.**

In each of the questions, identify the correct statement(s) from among the statements given. (Some questions contain preceding text which provides the context in which the said statements should be considered.)

1) What is /are correct regarding USB interfaces?

(a) USB 1.0- 1.5 standard allows devices to transfer data up to 15Mbps.
(b) USB 2.0 allows data transfer rates of 480Mbps up to a 5 m distance
(c) USB 3.0 speed is equivalent FireWire 800 (IEEE 1394b-2002).
(d) Standard A and B type USB 1.x/2.0 use 4 pins to transfer data.
(e) USB 3.0 use 9 pins connection to transfer data at high speed.

2) Consider the following statements with regard to fibre optics. Select the correct statement(s).

(a) Fiber termination is cheaper than copper termination.
(b) A multi mode fiber can be used to connect distances of up to 5km without repeaters having speeds of over 10Gbps .
(c) Multimode fibers are used for Fiber To Desktop (FTD) applications.
(d) Single mode fibers are commonly used for long distance communication networks.
(e) Single mode fibers cannot be used for commercial indoor applications.

3) What is the frequency spectrum allocated for the VHF band?

(a)	3MHz- 30MHz	(b)	30MHz-300MHz	(c)	300MHz- 3GHz
(d)	3GHz-30GHz	(e)	30GHz-300GHz		

4) Select the correct statement(s) regarding signal propagation in a media.

(a) Attenuation is the signal loss caused by the physical media.
(b) Delay distortion happens only on guided media
(c) Noise is the unwanted signal caused by resistance of the media
(d) Temperature fluctuation on physical media can add noise to the signal.
(e) Attenuation loss will not apply for a signal traveling in a guided media.

5) Consider the following statements about network topologies.

I. Star networks will utilise less amount of physical resources.
II. Ring networks can provide a more predictable network performance.
III. IEEE802.3 and 802.4 address standards and the protocols refer to communication over LANs.

Which of the above is/are true?

(a)	(i) only	(b)	(i) and (ii) only	(c)	(iii) only
(d)	(ii) and (iii) only	(e)	(ii) only		

6) Identify the connection oriented protocols.

(a)	FTP.	(b)	SSH.	(c)	HTTP.
(d)	ICMP.	(e)	SMTP		

7) What is the operational frequency of a CAT 6 UTP cable?

(a)	1-10MHz	(b)	1-100 MHz	(c)	1-200 MHz
(d)	1-250 MHz .	(e)	1-650 MHz.		

8) Consider the following statements about RSVP which is used as a key Quality of Service protocol.

(I) RSVP is a transport layer protocol.
(II) RSVP is a routing protocol.
(III) RSVP is designed to work with IPv4 and IPv6 protocol.

Which of the above statement(s) is/are true?

(a)	(i) only	(b)	(i) and (ii) only	(c)	(iii) only.
(d)	(i) and (iii) only	(e)	(ii) only		

9) Select the correct statement(s).

(a) Category 5 UTP cables support 1Gbps data rates.
(b) Category 5e. and category 6 support the same frequency band and data transfer rates
(c) Category 5e UTP cables have a higher bandwidth than that of Category 6 UTP cables.
(d) Multimode Fiber optic cables have a higher latency than CAT 6 UTP.
(e) Category 6 UTP cables have a higher cable thickness than category 3 or 5 UTP cables.

10) Which of the following can be considered as true regarding IPV6?

(a) IPv6 uses a 128 bit address length.
(b) IPV6 supports the network layer security.
(c) Broadcasting is a standard feature available in IPV6.
(d) The smallest routable subnet size on IPv6 is a /64.
(e) IPV6 address are normally written in hexadecimal notation.

11) Select the correct statements regarding flag bits on the TCP header.

(a) PSH flag is a Notification from sender to the receiver.
(b) FIN is the flag to indicate that the sender has finished sending.
(c) RST flag indicate that the sender is resending the data.
(d) SYN Flag is used on every packet header.
(e) SYN is the flag used to indicate the Synchronize sequence numbers.

12) Consider the following statements about PAN topologies as defined by IEEE 803.15.4

(I) PAN specifies mainly peer to peer connections
(II) PAN doesn't support dynamic connection topologies.
(III) Multiple power management is specified to reduce power utilisation.

Which of the above statements is/are true?

(a)	(i) only	(b)	(i) and (ii) only	(c)	(iii) only.
(d)	(i) and (iii) only	(e)	(ii) only		

13) Identify valid private host IP4 address(s) with the given mask from the following.

(a)	192.168.1.5/255.255.255.248	(b)	192.168.0.34/255.255.255.224
(c)	192.168.2.8/255.255.255.248	(d)	192.168.0.64/255.255.255.224
(e)	192.168.0.0/248.0.0.0		

14) Consider the following statements about connectionless and connection oriented protocols.

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(I) UDP is a connectionless protocol.
(II) TCP is a connectionless protocol.
(III) FTP is a Connection Oriented protocol.

Which of the above statements is/are true?

(a)	(i) only	(b)	(i) and (ii) only	(c)	(iii) only.
(d)	(i) and (iii) only	(e)	all		

15) How may hosts can be configured in a /24 IPv4 subnet.

(a)	254	(b)	128	(c)	256
(d)	512	(e)	255		

16) Consider the following statements about VLANs.

(I) VLAN can be created only based on IP Subnets.
(II) Frame tagging functions at Layer 2 will reduce the processing and administrative overhead in VLAN setup.
(III) A hybrid port can only carry traffic which will belong to a single VLAN.

Which of the above statements is/are true?

(a)	(i) only	(b)	(i) and (ii) only	(c)	(iii) only.
(d)	(i) and (iii) only	(e)	(ii) only		

17) What is the specified wire diameter in AWG for CAT 6 UTP?

(a)	23	(b)	24	(c)	21
(d)	22	(e)	20		

18) Which of the following can be considered true regarding TCP/IP?

(a) IP operates at transport layer in the OSI 7 layer model.
(b) TCP, handles reliable delivery for messages of arbitrary size.
(c) TCP operates at the network layer in the OSI 7 layer model.
(d) Routing of data is handle by Internet Protocol (IP).
(e) IP operates at Data link layer of OSI 7 layer model.

19) Which of the following can be considered true regarding TCP/IP 3 way handshake Connection Establishment?

(a) Active open: The client set the sync bit and send the port number for the connection.
(b) Active open: The sever set the sync bit and the client port number for the connection.
(c) Active open: The initial sequence number (ISN) is sent by the client.
(d) Passive open: The sever acknowledge the Client ISN and response with its ISN.
(e) Passive open: The server does not set the sync bit.

20) Identify the network in CIDR notation, which has the IP address range 10.1.0.0 – 10.1.31.255.

(a)	10.1.0.0/21	(b)	10.1.32.0/20	(c)	10.1.0.0/20
(d)	10.1.0.0/22	(e)	10.1.0.0/24		

21) Identify the applicable feedback Error Control based mechanism\s in data transmission from the following.

(a)	Stop-and-wait ARQ	(b)	Selective Repeat ARQ
(c)	block codes	(d)	Go-Back-N ARQ
(e)	convolution codes		

22) Which of the following technologies can be used to implement wired LAN security?

(a)	IPS	(b)	WEP	(c)	ACL
(d)	MAC filtering	(e)	VPN		

23) Consider the following statement/s about the Domain Name Service.

(I) DNS is a distributed service.
(II) DNS has 3 major components: resource records ,name servers and the resolver.
(III) Root servers hold the highest level of hierarchical DNS information

(a)	(i) only	(b)	(i) and (ii) only	(c)	(iii) only.
(d)	(i) and (iii) only	(e)	All		

24) Which of the following is/are correct with regard to firewalls?

(a) First generation firewalls can only block access of unsecure file types
(b) The second generation firewalls can operate on all 7 layers of the OSI model
(c) Forth generation firewalls are active dynamic devices
(d) Third generation firewalls do not operate at the application layer of the OSI 7 layer model
(e) Third generation firewalls can keep track of individual user.

25) Consider the following statement(s) about last mile connectivity technologies.

I. xDSL technology can provide high bandwidth links using copper for distances exceeding 10KM.
II. GPRS can provide higher link speeds than EDGE.
III. WiMAX technology can provide link speeds of upto 1Gbps for fixed base stations.

(a)	(i) only	(b)	(i) and (ii) only	(c)	(iii) only.
(d)	(i) and (iii) only	(e)	All		

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