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**ANSWER ALL THE FOLLOWING QUESTIONS GRADED WITH 30 POINTS**

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***Q.1: Complete the following sentences with suitable answer(s). If you believe in multiple answers please identify them (if exist). [10 points]***

- 1) What application layer protocols commonly used to support peer to peer communication?  
A) HTML      B) HTTP      C) FTP      D) NONE
- 2) Layers \_\_\_\_\_ of the Internet protocol stack (TCP/IP) are implemented in the end systems but not in the routers in the network core.  
A) One and Two      B) Two and Three      C) Three and Four      D) Four and Five
- 3) What is the automated service that allocates required IP address?  
A) DNS      B) SSH      C) FQDN      D) DHCP
- 4) What are the forms of application layer software?  
A) Semantics      B) Services      C) Applications      D) Requests      E) Syntax
- 5) Which two layers of the OSI model have the same functions as the TCP/IP model Network Access Layer  
A) Network      B) Transport      C) Physical      D) Data Link      E) Session
- 6) What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 192.168.10.0/26 subnet mask?  
A) 15      B) 30      C) 62      D) NONE
- 7) \_\_\_\_\_ means that a sender must not be able to deny sending a message that he sent.  
A) Confidentiality      B) Integrity      C) Authentication      D) Non-repudiation
- 8) DNS receives a \_\_\_\_\_ service from layer below.  
A) Connection-oriented      B) connectionless      C) a or b      D) NONE
- 9) Internet needs the \_\_\_\_\_ address to make datagram travel to the correct destination.  
A) Port      B) application      C) Internet protocol      D) NONE
- 10) What are three properties of peer-to-peer applications?  
A) Acts as both a client and server within the same communication      B) requires centralized account administration  
C) Hybrid mode includes a centralized directory of files      D) can be used in client-server networks  
E) Requires a direct physical connection between devices      F) centralized authentication is required
- 11) Which layer of the OSI model supplies services that allow user to interface with the network?  
A) Physical      B) session      C) network      D) presentation      E) application      F) transport
- 12) A network administrator is designing a network for a new branch office of twenty -five users. What are the advantages of using a client-server model?  
A) Centralized administration      B) does not require specialized software      C) security is easier to enforce  
D) Lower cost implementation      E) provides a single point of failure
- 13) What application layer protocol is commonly used to support for file transfers between a client and a server?  
A) HTML      B) HTTP      C) FTP      D) Telnet
- 14) DNS can use the services of \_\_\_\_\_ using the well-known port 53.  
A) UDP      B) TCP      C) Either (A) or (B)      D) NONE
- 15) Which characteristic correctly refers to end devices in a network?  
A) Manage data flows      B) Originate data flow  
C) Retime and retransmit data signals      D) Determine pathways for data
- 16) Which Layer encapsulates the segment into packets?  
A) Physical      B) Data Link      C) Network      D) Transport
- 17) Substitution and \_\_\_\_\_ cipher could be categorized as a classical symmetric data encryption.  
A) Authentication      B) Transposition      C) Integration      D) NONE

- 18) Message \_\_\_\_\_ means that the data must arrive at the receiver exactly as sent.  
 A) Confidentiality      B) integrity      C) authentication      D) NONE
- 19) TCP is \_\_\_\_\_ protocol  
 A) Connection-oriented      B) connectionless      C) both a and b      D) NONE
- 20) Message \_\_\_\_\_ means that the receiver is ensured that the message is coming from the intended sender.  
 A) Confidentiality      B) integrity      C) authentication      D) NONE

**Q.2:**

**[6 Points]**

*Write the name of OSI layer that match the following device or protocol*

Hub	
Switch	
Router	
Repeater	
FTP	
MP4	

**Q.3:**

**[8 Points]**

*Suppose that you have been asked to design a network for a company of five departments each one would have a sub-network contain 500 host. Suppose a host in the 1<sup>st</sup> department would have an IP of 10.10.0.7*

*Find the subnet mask, network address, broadcast address, first valid IP and last valid IP of the five sub-networks*

No	Network address	Broadcast address	first valid IP	last valid IP	Mask
1 <sup>st</sup>					
2 <sup>nd</sup>					
3 <sup>rd</sup>					
4 <sup>th</sup>					
5 <sup>th</sup>					

**Q.4:**

**[6 Points]**

*A) What is the difference between security policy and security mechanism?*

*B) Compare between Stream cipher vs. block cipher*

*C) Compare between Unconditional vs. Computational Security*

*D) What is the difference between passive and active security threats?*