Roll No. .....

B.Sc. (Hons.) SEMESTER V EXAMINATION 2016-17

COMPUTER SCIENCE

BCS - 501 : Net Centric Computing

Time : Three hours **Max. Marks : 70**

(WRITE YOUR ROLL NO. AT THE TOP IMMEDIATELY ON THE RECEIPT OF THIS QUESTION PAPER)

NOTE : ANSWER ANY FIVE QUESTIONS INCLUDING QUESTION NO. 01, WHICH IS COMPULSORY.

1. a) Mention the difference between two types of transmission technology : broadcast link and point to point links.
   b) What are the basic services provided by third (3G) generation mobile phones?
   c) Mention the advantage of DHCP protocol over BOOTP protocol.
   d) What are the four primary qualities of service parameters?
   e) What is domain name space?

2. a) Explain the functionalities of various layers, in brief of TCP/IP reference model.
   b) Explain three main multiplexing techniques : FDM, TDM & WDM. Also, distinguish between synchronous and statistical TDM.

3. a) Five bit messages are transmitted using a Hamming code. How many check bits are needed to ensure that the receiver can detect and correct single bit errors? Show the bit pattern transmitted for the message 11010. Assume that even parity is used in the Hamming code.
   b) Explain the reason for moving from stop and wait ARQ protocol to the GO-BACK-N ARQ protocol.
   c) What is Point-to-point protocol (PPP)?

4. a) Datagram subnets route each packet as a separate unit independent of all others Virtual Circuit subnets do not have to do this, since each data packet follows a predetermined route. Does this observation mean that virtual circuit subnets do not need the capability to route isolated packets from an arbitrary source to an arbitrary destination? Explain your answer.
   b) Draw the IPv4 datagram header format and explain the fields in brief.
   c) Explain any static routing algorithm.

5. a) What are the Byte numbers and sequence number in TCP protocol? Explain three way handshaking method of connection establishment of a TCP connection.
   b) What is the difference between open-loop congestion control and closed loop congestion control? Explain any **two** methods of congestion control in datagram subnet.

6.	a)	Explain the role of Message Transfer Agent (MTA) in Email architecture.	5
	b)	What are cookies?	4
	c)	What is the main objective of 'Simple Network Management Protocol' (SNMP)? Explain, how it works?	5
7.	a)	What is the difference between symmetric and asymmetric key Coxyptography? Explain RSA algorithm for asymmetric key Coxyptography.	7
	b)	What is digital signature? How does it help in network security?	7

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