Student Exam No._____

GANPAT UNIVERSITY

B. Tech. Semester: VI (Computer / Information Technology) Engineering

Regular Examination April – June 2016

2CE602/IT602 Network Protocols & Programming

Time: 3 Hours **Total Marks:** 70

Instruction: 1: Figures to right side indicated full marks.
2: Each section should be written in a separate answer book.
3: Assume suitable data if required.
4: Be precise and to the point in your answer.

Section – I

Que. – 1 [A] Explain input module of ARP protocol with pseudo code. 04

[B] Find the topology of the network if Table shown below is the routing table for router R1. 04

Mask	Network Addr.	Next-Hop Addr	Interface
/26	210.14.17.0	---	M1
/18	145.23.192.0	---	M0
/18	10.10.20.0	210.14.17.5	M1
default	default	---	M2

[C] How Reassembly module works in IP package? 04

OR

Que. – 1 [A] The ARP output module receives an IP datagram (from the IP layer) at time T1 with the destination address **116.1.7.22.** How ARP protocol will handle packets for the same destination? Explain 04

State	Queue	Attempts	Time-out	IP address	H/w address
R			840	116.1.7.23	ACAE32457344
F					
P	1	2		116.1.7.24	

[B] Explain longest mask matching principle with example. 04

[C] How Fragmentation module works in IP package? 04

Que. – 2 [A] Explain destination unreachable ICMP error reporting message. 06

[B] What is OSPF? Explain following types of OSPF packets. 05

a. Hello

b. Database description

c. Link state request

OR

Que. – 2 [A] Explain following error/query reporting messages of ICMP. 06

a. Parameter problem message

b. Timestamp request/reply message

[B] Explain following with respect to path vector routing algorithm. 05

a. Path attribute

b. Reachability information

c. BGP sessions

Que. – 3 [A] What is need of IGMP protocol? Which functions are performed by IGMP protocol? 04

[B] Which four sets of actions are required to build routing table in link state routing? 04

[C] In a block of addresses, we know the IP address of one host is 182.44.82.16/26. What is the first address (network address) and the last address (limited broadcast address) in this block? 02

[D] What do you think there is a need for four levels of addresses in the Internet, but only one level of addresses (telephone numbers) in a telephone network? 01

[F] A host with IP address 137.23.56.23/16 sends a packet to a host with IP address 137.23.67.9/16. Is the delivery direct or indirect? Assume no sub netting. 01

Section – II

Que. – 4 [A] The following is a dump of a UDP header in hexadecimal format. 05

0045DF000058FE20

a. What is the source port number?

b. What is the destination port number?

c. What is the total length of the user datagram?

d. What is the length of the data?

e. Is the packet directed from a client to a server or vice versa?

f. What is the client process?

[B] Explain Data transfer and connection termination phase of TCP. 05

[C] What is the responsibility of Message Transfer agent in E-mail? 02

OR

Que. – 4 [A] Draw UDP Packet Header Format and explain each term used in it. 05

[B] TCP opens a connection using an initial sequence number (ISN) of 05

12,223. The Other party opens the connection with an ISN of 15,600.

a. Show the three TCP segments during the connection establishment.

b. Show the contents of the segments during the data transmission if the initiator sends a segment containing the message "Hello" and the other party answers with a segment containing "How are you."

c. Show the contents of the segments during the connection termination.

[C] Write down different service provided by transport layer. 02

Que. – 5 [A] Draw TCP segment format. Explain HLEN and window size field used in it. 05

[B] The following is a dump of an SCTP general header in hexadecimal format. 04

04320017 00000001 00000000

a. What is the source port number?

b. What is the destination port number?

c. What is the value of the verification tag?

d. What is the value of the checksum?

[C] What is the use of State Cookie field of INIT ACK Control chunk of SCTP? 02

OR

Que. – 5 [A] Explain TCP Timers in detail. 05

[B] Explain Association Establishment phase of SCTP with diagram. 04

[C] Describe multihoming and multiple streams services of SCTP. 02

Que. – 6 [A] What is namespace in DNS? Explain hierarchical name space in detail. 04

[B] Differentiate between UDP, TCP, and SCTP. 03

[C] Explain Network Virtual Terminal (NVT). 03

[D] Define Following: FTP, TFTP. 02

END OF PAPER