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RM-7725

B. E. IV (Sem. VIII) (EC) Examination

April / May – 2010

Computer Communication & Networking

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 4 (Sem. 8) (EC)**

Name of the Subject :

☛ **Computer Communication & Networking**

☛ Subject Code No. : **7 7 2 5** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Attempt all questions.

(3) Figures to the **right** indicate full marks.

(4) Assume suitable data whenever **necessary**.

SECTION - I

1 (a) Answer the following questions in short : **7**
(one mark each)

(i) Which layer is responsible for process to process delivery of the message?

(ii) Which layer will transmit bit stream?

(iii) How error correction is achieved in stop and wait ARQ protocol for corrupted frames?

(iv) What is 'normal response mode' of HDLC?

(v) Give an example of physical address.

(b) Explain following terms : **5**

(i) Syndrome bits

(ii) Burst error

(iii) Logical addressing

(iv) VCI

(v) Codeword.

(c) For IP header shown in figure 1 below calculate checksum and state its importance. **5**

4	5	0	28
100		1	475
4	17	0	
123.45.67.8			
192.168.10.10			

Fig. 1

(d) Match the following to one of the seven OSI layers. **3**

(i) Format and code conversion services.
(ii) Establishes, manages, and terminates sessions.
(iii) Ensures reliable transmission of data
(iv) Login and logout procedures.
(v) Provides independences from differences in data representation.
(vi) Reassembly of data packets.

2 (a) Explain functions of data link layer. **7**

(b) In (7,4) block coding if sender has transmitted data 1110010 and it is received as 1010010 then how error is detected and corrected at receiver using hamming code? Explain process of generating and checking hamming code. **8**

OR

2 (a) Explain all guided medias used for data transfer with neat diagram. **6**

(b) Explain datagram switching. **3**

(c) Discuss go back N and selective repeat with example. **6**

3 Write short notes on any **three** of the following : **15**

(i) CRC generator and checker
(ii) Bit stuffing and character stuffing
(iii) CSMA/CD LAN
(iv) IEEE 802.4 token bus protocol
(v) PPP.

SECTION - II

4 (a) Answer the following questions in short : **7**
(one mark each)

(i) For given subnetted host IP address 192.189.210.78 if broadcast address is 192.189.210.95 identify subnet.

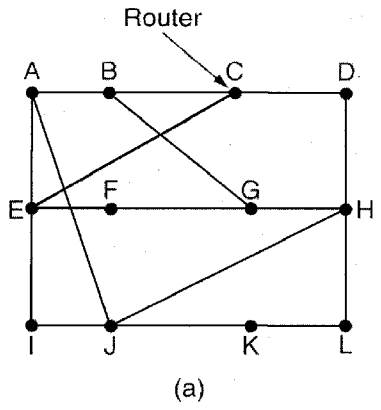
(ii) List any two applications which use UDP as transport layer protocol.
(iii) State function of identification field of IP header.
(iv) What do you mean by sink tree? Explain with diagram.
(v) Give example of exterior gateway protocol.
(vi) While reassembling fragment, how host can identify all fragments are from same packet?
(vii) What is selective flooding algorithm?

(b) Fill in the blanks : (**one** mark each) **7**
(i) Protocol used for multicasting is _____.
(ii) The internet has _____ network layer and ATM has _____ network layer.
(iii) Flow based routing algorithm consider _____ and _____ for routing.
(iv) Maximum size of TCP payload is _____ bytes.
(v) If source and destination hosts are on same type of network but there is a different network in between,_____ is used for internet working.

(c) Answer the following questions : (**two** marks each) **6**
(i) List any two circumstances in which ICMP protocol is used.
(ii) State significance of port number.
(iii) Explain one time pad.

5 (a) For an IP address 172.61.25.16, and subnet mask : 255.255.224.0 Find : **5**
(i) Find subnet address
(ii) Number of subnets possible on this network.
(iii) Number of hosts possible on each subnet.
(iv) Range of addresses of the subnet consisting host 172.61.25.16.
(v) Broadcast address on subnet.

(b) Figure 2(a) shows subnet topology and figure 2(b) shows delay vectors received from the neighbours of router E. Suppose E has estimated its delay to its neighbours A, I, F and C as 9, 11, 7 and 10 respectively. Explain how E computes its new routing table using Bellman ford algorithm. Also show route from router E to router K and from router E to router L. **5**



(a)

To	A	I	F	C
A	0	24	20	21
B	12	36	31	28
C	25	18	19	36
D	40	27	8	24
E	14	7	30	22
F	23	20	19	40
G	18	31	6	31
H	17	20	0	19
I	21	0	14	22
J	9	11	7	10
K	24	22	22	0
L	29	33	9	9

(b)

Fig. 2

(c) Explain hierarchical routing algorithm with diagram. **5**

OR

5 (a) If network address is 16 bits, subnet address is 12 bits identify **4**

(i) Class of address
(ii) Total number of subnet
(iii) Number of Host per subnet
(iv) Subnet mask.

(b) What do you mean by adaptive and nonadaptive routing algorithms? Give example of both types of routing algorithm. **4**

(c) For subnet shown in figure below, build link state packets and explain steps of link state routing. **7**

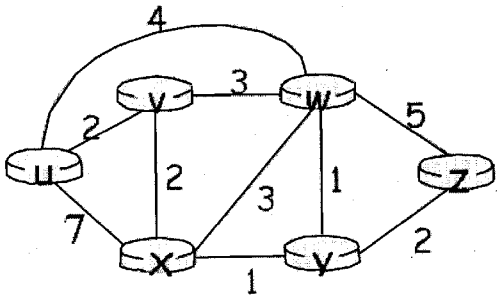


Fig. 3

6 Answer any **three** of the following : **15**

(i) Explain TCP connection establishment with diagram.
(ii) Explain transport layer socket functions.
(iii) Write short note on breaking DES.
(iv) Discuss authentication based on shared secret key.
(v) Discuss protocols used for world wide web and Email services.