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[5219]-3004

S.Y. B.C.A. (Science) (III Semester) EXAMINATION, 2017

BCA-304 : INTRODUCTION TO COMPUTER NETWORK

(2016 PATTERN)

Time : Three Hours

Maximum Marks : 70

N.B. :— (i) Question No. 1 is compulsory.

(ii) Attempt any *two* questions from Group I and any *two* questions from Group II.

(iii) *All* questions carry equal marks.

(iv) Figures to the right indicate full marks.

(v) Use of scientific calculator is allowed.

1. (A) Attempt the following : [7]

(1) In which of the following topologies hub is required ?

(a) Star

(b) Ring

(c) Bus

(d) Mesh

P.T.O.

- (2) Which of the following device operates at the network layer of OSI model ?
- (a) Repeater
 - (b) Router
 - (c) Bridge
 - (d) Hub
- (3) Transmission media is closer to the following layer :
- (a) Application
 - (b) Physical
 - (c) Transport
 - (d) Network
- (4) If the bandwidth of a channel is 5 Kbps, how long does it take to transmit a frame of 100000 bits ?
- (a) 20s
 - (b) 10s
 - (c) 30s
 - (d) 2s
- (5) In which error detection method polynomials are involved ?
- (a) Simple parity check
 - (b) 2-D parity check
 - (c) CRC
 - (d) Checksum

- (6) The length of IP address is
- (a) 46 bits
 - (b) 32 bits
 - (c) 16 bits
 - (d) 64 bits
- (7) In the method, each station has a predecessor and a successor.
- (a) Reservation
 - (b) Polling
 - (c) Token passing
 - (d) None of the above

(B) Attempt the following : [7]

- (i) Define Computer Network.
- (ii) List any *four* application layer protocols.
- (iii) What are the types of twisted pair cables ?
- (iv) What is an analog signal ?
- (v) What is channelization ?
- (vi) Define netid and hostid.
- (vii) Define topology.

Group I

2. Attempt the following :

- (a) Explain broadcast and point to point transmission. [5]
- (b) Differentiate between OSI and TCP/IP reference model. [5]
- (c) Write a note on co-axial cable. [4]

3. Attempt the following :

- (a) What do you understand by unguided media ? Give an account of infrared waves. [4]
- (b) Describe home applications of Computer Network. [4]
- (c) Draw Graph for NRZ – L coding for the following data : [3]
 - (1) 00000000
 - (2) 11111111
 - (3) 01010101
- (d) Write in detail about goals of Computer Network. [3]

4. Attempt the following :

- (a) Given the dataword to be sent is 100100 and the divisor is 1101 : [4]
 - (i) Show the generation of the code word at sender side.
 - (ii) Show checking of code word at receiver side.

- (b) Write a note on Ethernet. [4]
- (c) Write a note on classful addressing. [3]
- (d) Compare circuit switching and packet switching. [3]

Group II

5. Attempt the following :

- (a) Write in detail about pure and slotted ALOHA. [5]
- (b) Compare FDM and TDM. [5]
- (c) Explain the tasks performed by Network Layer. [4]

6. Attempt the following :

- (a) Given a channel with an intended capacity of 20 Mbps. The bandwidth of the channel is 3 MHz. What signal to noise ratio is required in order to achieve this capacity ? [4]
- (b) Write a note on serial transmission. [4]
- (c) State the difference between IPV4 and IPV6. [3]
- (d) Explain the concept of framing in detail in data link layer. [3]

7. Attempt the following :

- (a) Write a note on LAN with its advantages and disadvantages. [4]

- (b) Define the following terms : [4]
- (i) Bandwidth
 - (ii) Throughput
 - (iii) Latency
 - (iv) Jitter.
- (c) Write a note on modes of transmission over a network. [3]
- (d) Discuss in detail straight through cable and cross over cable. [3]