

CS/BCA/Even/Sem-6th/BCAE-601A/2015



WEST BENGAL UNIVERSITY OF TECHNOLOGY

BCAE-601A

ADVANCED NETWORKING AND COMMUNICATION

Time Allotted: 3 Hours

Full Marks: 70

*The questions are of equal value.
The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable. All symbols are of usual significance.*

GROUP A

(Multiple Choice Type Questions)

1. Answer *all* questions. 10×1 = 10
- (i) Shanon Capacity determines
- (A) noise present in a channel
 - (B) highest data rate in a noisy channel
 - (C) whether channel is noiseless
 - (D) all of these
- (ii) For 10 subnets in class C network, the subnet mask will be
- (A) 255.255.255.0
 - (B) 255.255.255.240
 - (C) 255.255.255.224
 - (D) None of these
- (iii) The number of hosts in a class A network is
- (A) 2^{16}
 - (B) 2^8
 - (C) 2^{24}
 - (D) 2^{32}

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- (iv) After a message is decrypted, it is called
- (A) plain text
 - (B) cipher text
 - (C) compressed text
 - (D) block cipher
- (v) ARP is used to find
- (A) IP address
 - (B) MAC address
 - (C) Subnet address
 - (D) Host address
- (vi) FTP uses port ID
- (A) 20
 - (B) 21
 - (C) 80
 - (D) both (A) and (B)
- (vii) Unipolar encoding uses
- (A) only one voltage level
 - (B) two voltage level
 - (C) three voltage level
 - (D) none of these
- (viii) Optical transmission mainly uses
- (A) TDM
 - (B) WDM
 - (C) FDM
 - (D) All of these
- (ix) Baud rate is
- (A) number of bits/second
 - (B) number of signal changes/second
 - (C) number of bytes/second
 - (D) none of these
- (x) GSM stands for
- (A) Good Service Mobile
 - (B) Global Service Mobile
 - (C) Global System for Mobile Communication
 - (D) Global System for Mobile

GROUP B

(Short Answer Type Questions)

Answer any *three* questions.

3×5 = 15

2. Explain FDM process. 5
3. (a) In HDLC, what is bit stuffing and why is it needed? 3
(b) A modem has a baud rate of 40 signals/seconds. If it is transmitted at the rate of 1600 bps, what is the coding rate? 2
4. (a) Explain function of circuit switching. 3
(b) Draw signal representation using any two bipolar encoding schemes for a bit pattern 1011010001. 2
5. "In Go-Back-N ARQ, the window size at the sender side must not be longer than $2^m - 1$, where m is the number of bits in the sequence number of the frame" – Explain. 5
6. "8-QAM is better than 8-PSK" – Justify. Compute the bit rate for a signal of 1000 baud/sec and following 16-QAM. 3+2

GROUP C

(Long Answer Type Questions)

Answer any *three* questions.

3×15 = 45

7. (a) Briefly explain three different types of HDLC frames. 6
(b) Give the frame format of X.25. 5
(c) Compare pure ALOHA and slotted ALOHA technique for sharing access. 4

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8. (a) Point out the advantages and disadvantages of using satellite communication. 4
- (b) What do you mean by bit oriented and character oriented protocol? 5
- (c) Let a data bit sequence $M = 1000110$ is transmitted but the receiver receives the sequence with any one bit corrupted. Use hamming code to identify the corrupted bit position so that it can be automatically corrected. 6
9. (a) Briefly describe the different fields of the TCP or IP header. 5
- (b) What are the roles of bridges and routers in internetworking? Discuss transparent bridge and source routing bridge. 6
- (c) What is the difference between Distance Vector Routing and Link State Routing? 4
10. (a) Explain the operation of Simple Network Management Protocol (SNMP). 4
- (b) What is DC component? 2
- (c) What is digital signature? What is its usage? 4
- (d) What are the differences between classful and classless addressing? 5
11. Write short notes on any *three* of the following: 3×5
- (a) ISDN
 - (b) Ethernet
 - (c) DQDB
 - (d) ATM network
 - (e) CRC
 - (f) FTP
 - (g) ICMP
 - (h) HTTP