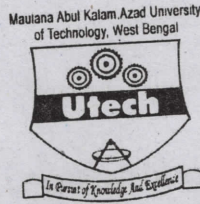


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CS/BCA(O)/ODD/SEM-5/BCA-501/2019-20



**MAULANA ABUL KALAM AZAD UNIVERSITY OF  
TECHNOLOGY, WEST BENGAL**

**Paper Code : BCA-501**

**PUID : 05144 ( To be mentioned in the main answer script )**

**DATA COMMUNICATION &  
COMPUTER NETWORKS**

**Time Allotted : 3 Hours**

**Full Marks : 70**

*The figures in the margin indicate full marks.  
Candidates are required to give their answers in their own  
words as far as practicable.*

**GROUP - A  
( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any ten of the  
following :  $10 \times 1 = 10$

- i) TCP is a/an
  - a) reliable connection oriented protocol
  - b) unreliable connection oriented protocol
  - c) reliable connectionless protocol
  - d) unreliable connectionless protocol.
- ii) Microwaves are used for
  - a) unicast communication
  - b) multicast communication
  - c) both (a) and (b)
  - d) none of these.

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7.

8.

9.

- iii) UDP belongs to
  - a) network layer
  - b) transport layer
  - c) Mac layer
  - d) data link layer.
- iv) Range of class C address is
  - a) 128-191
  - b) 190-220
  - c) 192-223
  - d) 190-223.
- v) ARP protocol is used to map
  - a) hardware address to hardware address
  - b) physical address to logical address
  - c) IP network address to hardware address
  - d) none of these.
- vi) Framing is done in
  - a) network layer
  - b) transport layer
  - c) data link layer
  - d) none of these.
- vii) The standard for Token Ring is
  - a) IEEE 802.3
  - b) IEEE 802.5
  - c) IEEE 802.6
  - d) none of these.
- viii) GSM stands for
  - a) Good Service Management
  - b) Global Service Management
  - c) Good Sender Memory
  - d) Global System for Mobile Communication.
- ix) Which topology features a point-to-point line configuration?
  - a) Mesh
  - b) Ring
  - c) Star
  - d) All of these.
- x) After a message is decrypted, it is called
  - a) plain text
  - b) cipher text
  - c) crypto text
  - d) none of these.



- xi) Keyboard is an example of which of the following ?
- a) Simplex
  - b) Half Duplex
  - c) Full Duplex
  - d) None of these.
- xii) MODEM stands for
- a) MODulo Encoding Mechanism
  - b) MODulator DEModulator
  - c) Maximally Optimized DEModulator
  - d) None of these.

**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. a) Compare between OSI Model and TCP/IP reference Model. 4
- b) What is MAC address ? 1
3. What is IP addressing ? What are the classes of IP addressing ? What do you mean by classless addressing ?  $2 + 2 + 1$
4. Explain the transmission characteristics of fiber optics.
5. Encode the bit stream 01001110 using NRZ-L, NRZ-I encoding.
6. What is RSA ? How does it work ?  $1 + 4$

**GROUP - C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Discuss the frame format of 802.4 LAN. 4
- b) Given a bandwidth of 5000 Hz for an 8-PSK signal, what are the band rate and bit rate ?  $2 + 2$
- c) Compare between BSC protocol and HDLC protocol. 4
- d) What is piggy backing ? 3



8. a) Explain the Stop and Wait protocol. 4  
b) What is circuit switching ? How does it differ with message switching ? 3 + 2  
c) Briefly define Repeater, Bridge and Router. 2 + 2 + 2
9. a) Encode the bit sequence 0101 using ASK, FSK, PSK. 2 + 2 + 2  
b) Briefly describe the priority access methods of Token Ring. 5  
c) Compare FDM and TDM. 4
10. a) Briefly describe the function of Data Link Layer and Network Layer of OSI Model. 3 + 3  
b) What are DTE and DCE ? Explain the DTE and DCE interface. 2 + 4  
c) What is baud rate ? 1  
d) What are Private Key and Public key ? 2
11. Write short notes any *three* of the following : 3 × 5  
a) Leaky Bucket Algorithm  
b) GEO  
c) ALOHA  
d) Topology  
e) PCM.
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