CHITKARA UNIVERSITY

Sessional Test I – SEPTEMBER 2018

Semester III

ID No: .....

[Total No. of Pages: 03]

Department: Department of Computer Science
Title of the Course: Computer Networks
Course Code: CSL 3203

Time: 90 minutes

Max. Marks: 40

Instructions:

For Section A

- There is one question having five parts. Each part is having four distinct options out of which only one choice will be correct. There is no negative marking for incorrect answers.

For Section B

- There are 6 Questions of 2 marks each. There is a choice to attempt 5 questions out of 6.

For Section C

- There are 4 Questions of 5 marks each. There is a choice to attempt 3 questions out of 4.

For Section D

- There are 2 Questions of 10 marks each. There is a choice to attempt 1 question out of 2.

Section A

(All Questions are Compulsory, each question carries 01 mark)

1

a) From Senders point of view, which layer is Closest?

(i)Network Layer (ii)Session Layer

(iii)Application Layer (iv)Physical Layer

b) Which waves are not used for wireless LAN communications?

(i)Radio (ii)Infrared

(iii)Micro (iv)Ultra Sonic

c) Which type of address will change from hop to hop?

(i) Physical Addresses (ii) Logical Addresses

(iii) Port Addresses (iv) Socket Addresses

d) Which of the following is NOT true with respect to Switch and Router?

(i)Both Switch and router selectively forward data packets

(ii) A switch uses only IP addresses while a Router uses only MAC addresses

(iii) A router builds up its routing table by inspecting incoming packets

(iv) A router can connect between a LAN and a WAN

e) The hamming distance (0010,0111) is_____

(i) 2 (ii) 3

(iii) 6 (iv) 0

Section-B

(Attempt any 5 questions, each question carries 02 marks)

2. Using 5-bit sequence numbers, what is the maximum size of the send and receive windows for each of the protocols?
   a) Selective Repeat ARQ
   b) Go Back N ARQ
3. Which topology would be best suitable for attaining maximum efficiency in Banking Sector? State the reason also.
4. For the following networks, which transmission media would you suggest and why?
   a) Television Cable Networks
   b) Intra University Networks

5. Which basic characteristic of Noisy Channel Protocol makes them different from Noise less Channel in Data Link Layer? Illustrate with Stop and Wait Protocol in both cases.

6. Write down the Practical applications of

   a. Radio waves b.Micro waves

7. What would be the actual bits transmitted, If the block of 16 bits(10101001 00111001) is to be sent using a Checksum of 8 bits.

Section-C

(Attempt any 3 questions, each question carries 5 marks, subparts (if any) carry equal weightage)

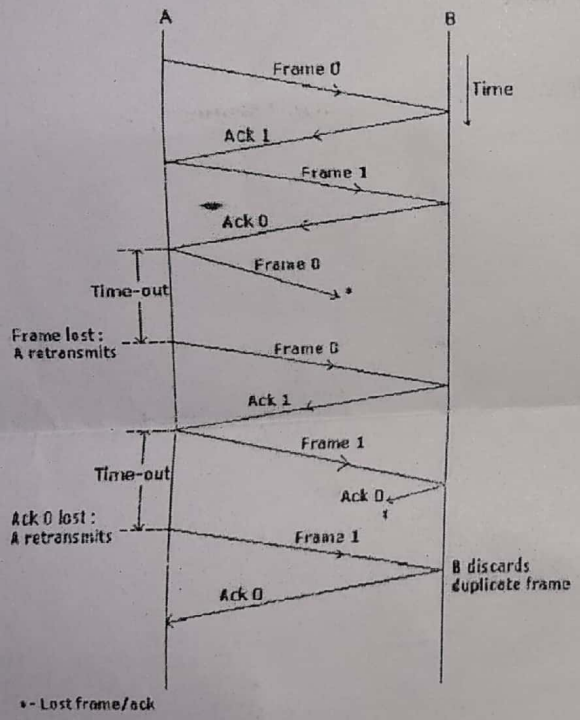
8. Given a Polynomial generator

   $G(x) = x^4 + x + 1$ and message $M(x) = 11010$

   Calculate CRC and check if there is error or not.

9. How Bits are grouped at Data Link Layer and what are the drawbacks of each grouping method ?

10. Identify the Protocol and also discuss the various scenarios shown in the following figure:



11. Infer upon the similarities and differences that exists between OSI and TCP/IP reference models.

Section-D

(Attempt any one question, each question carries 10 marks, subparts (if any) carry equal weightage)

12. a) Compare and contrast the GO-Back-N ARQ protocol with Selective-Repeat ARQ.

    b) Briefly explain various design issues of Data Link Layer.

13. a) What is Pure ALOHA and Slotted ALOHA? Considering their maximum efficiency, which one has higher throughput and why? Explain your answer.

    b) A Pure Aloha network transmits 200-bit frames on a shared channel of 200kbps.What is the throughput if the system (all stations together) produces

    i) 1000 frames per second?

    ii) 500 frames per second?

CHITKARA UNIVERSITY

2018-2019

Sessional Test II–October, 2018

Semester I

ID No: .....

[Total No. of Pages: 3]

Title of the Course: Computer networks
Course Code: CSL3203

Time: 90 minutes
Max. Marks: 40

Instructions:

For Section A
- There is one question having five parts. Each part is having four distinct options out of which only one choice will be correct. There is no negative marking for incorrect answers.

For Section B
- There are 6 Questions of 2 marks each. There is a choice to attempt 5 questions out of 6.

For Section C
- There are 4 Questions of 5 marks each. There is a choice to attempt 3 questions out of 4.

For Section D
- There are 2 Questions of 10 marks each. There is a choice to attempt 1 question out of 2.

Section-A

(All Questions are Compulsory, Each question carries 01 mark)

1.

a) From the given satellites the services of which satelllite/s are used to support Global positioning system?
(i) GEO (ii) MEO
(iii) LEO (iv) All of these

b) For 64 services based on periority assignment in IPv4 datagram's header, which code point is used by local authority?
(i) XXXX11 (ii) XXXX01
(iii) XXXXX0 (iv) XXXX10

c) Which of the following class of IP addresses is used for multicasting?
(i) Class D (ii) Class A
(iii) Class B (iv) Class C

d) What is the wild card mask number of an IP address 142.0.0.0/26?
(i) 255.255.0.0 (ii) 255.255.255.192
(iii) 0.0.0.63 (iv) 0.0.0.255

e) Whta is the administrative distance of EIGRP protocol?
(i) 90 (ii) 110
(iii) 120 (iv) 170

Section-B

(Attempt any 5 questions, each question carries 02 marks)

2. Define the significance of frequency reuse mechanism in mobile communication?
3. Differentiate between RIPv1 and RIPv2.
4. Address the advantage of dividing an Ethernet LAN with a bridge.
5. We have IPv4 protocol but still we feel a need to implement the IPv6 protocol in networking, why?
6. Calculate the number of user IDs in the subnet and subnet ID, if IP address from a subnet is 172.16.200.6/19?
7. For a wireless network which CSMA method is good to implement, give reason?

Section-C

(Attempt any 3 questions, each question carries 5 marks, subparts (if any) carry equal weightage)

8. An IPv4 datagram is arrived with the following information in header part (in hexadecimal),
0x45000054000358502006000007C4E0302B40E0F02

Answer the following:
(i) Is the packet corrupted?
(ii) Are there any options present in the header?
(iii) What is the size of the data?
(iv) Is the packet fragmented?

9. Identify the persistence methods shown in figures (1-3) and explain their operation?

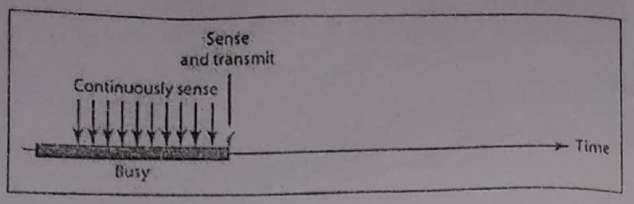


Fig. (1)

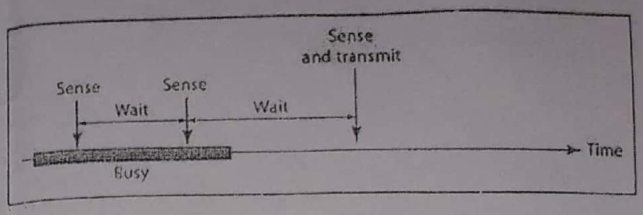


Fig. (2)

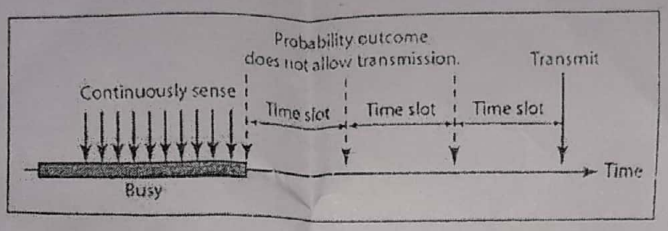


Fig. (3)

10. Write a short note on satellite communication.
11. LSPs contains what type of information in them? Create a routing table of node "C" given in the topology (Fig. 4) using Dijkstra's algorithm.

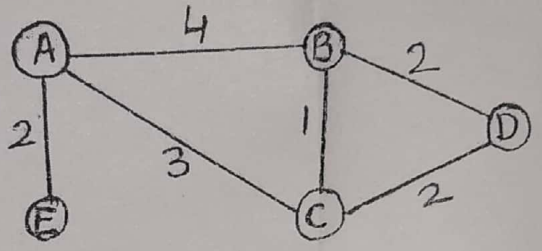


Fig. (4)

Section-D

(Attempt any one question, each question carries 10 marks, subparts (if any) carry equal weightage)

12. An ISP is granted a block of addresses starting with 160.100.0.0/16. The ISP needs to distribute these addresses to three group of customers as follows:

(i) The first group has 64 customers, each needs 350 addresses.
(ii) The second group has 128 customers, each needs 128 addresses
(iii) The third group has 128 customers, each needs 64 addresses.
Design the subblocks and find out how many address are still available after these allocations.

13. In Fig. (5) a topology is given with addresses mentioned in it, implement OSPF protocol on CURIN block routers (write all command lines).

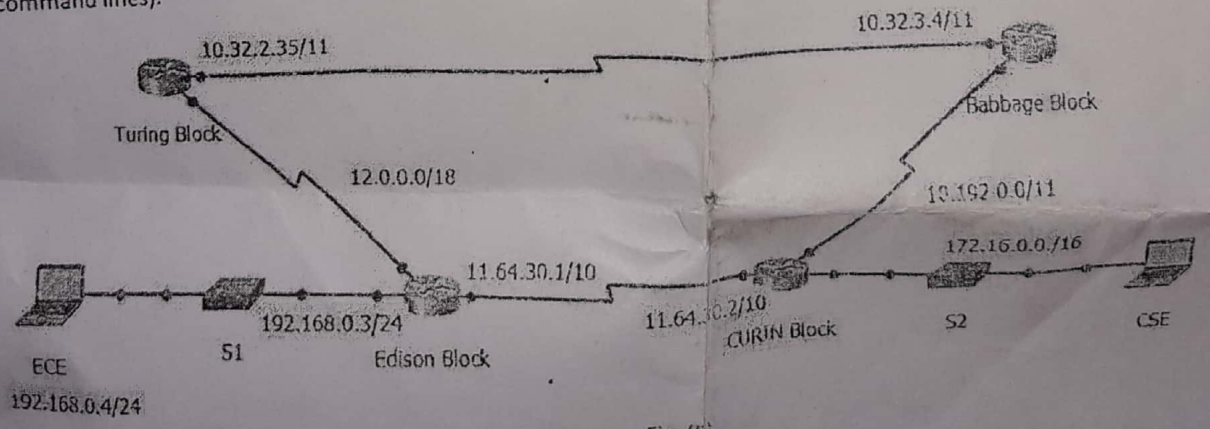


Fig. (5)