

**II SEMESTER M.TECH. (COMPUTER NETWORKING AND ENGINEERING)****END SEMESTER EXAMINATIONS, APRIL/MAY 2019****SUBJECT: ADVANCED COMMUNICATION NETWORK****TECHNOLOGIES[ICT 5202]****REVISED CREDIT SYSTEM****(26/04/2019)**

Time: 3 Hours

MAX. MARKS: 50

**Instructions to Candidates:**

- ❖ Answer ALL the questions.
- ❖ Missing data if any, may be suitably assumed.

- 1A. The OFDM based technology is used in car to car communication system that operates on IEEE802.11p. The physical layer technology is OFDM. The defined slot time is 10 microseconds and SIFS is 20 microseconds. Calculate the NAV values and delay incurred per packet. Assume CSMA-CA with RTS-CTS  
 packet size : 1250 bytes  
 Data rate: 10 Mbps. 5
- 1B. Write the algorithm to extract the UTC time, the number of satellites used in the calculation of position information and identify the latitude considering the following data from GPS Receiver. 3  
 \$GPGGA,130304.0,4717.115,N,00833.912,E,1,08,0.94,00499,M,047,M,,\*59<CR><LF>  
 Develop a simple and useful application which works on the extracted data.
- 1C. SONET allows positive or negative byte stuffing to take place at most once every four frames. Calculate the minimum and maximum rates of the payload that can be carried within an STS-1 SPE. Given Payload rate = 50.112 Mbps. 2
- 2A. The reactive routing algorithms are more suitable than the proactive routing algorithms in mobile Adhoc networks, Why? Discuss a method that controls the flooding of the Route Request (RREQ) packets. 5  
 With a sample network explain the operation of a reactive routing algorithm that uses the three mobility management mechanisms.
- 2B. Discuss the concept of VC merging and explicit routing principle supported in MPLS. 3  
 What are its benefits?
- 2C. Write the Router model in Integrated services IP and explain the role of classifier and Packet scheduler. 2
- 3A. Show with examples that the 3-stage Clos network(switch fabric) design can reduce the cross points when compared to Cross bar switch with the same number of inputs and outputs. 5

- 3B. Draw the sketch of 8x8 banyan switch fabric and compute the total number of cross points used. What are the features of such a switch fabric? 3
- 3C. Write a sample ring network of 4 nodes and show the working of self healing mechanism in SONET. 2
- 4A. The network department of MAHE is planning to implement ATM Network for Internet. Suggest and explain an ATM adaptation layer process for applications of Internet type. 5
- 4B. Discuss the PNNI routing algorithm features and explain the use of Designated Transit List(DTL). 3
- 4C. List the QOS parameters inherent to the network and QOS parameters that can be negotiated during Connection setup. 2
- 5A. Describe the features of SONET. Consider a 1300 nm single mode optical fibre. Assume that optical window is 75 nm. Compute the bandwidth supported by optical fibre. How does DWDM help in utilizing such a bandwidth? 5
- 5B. A sample mibtree is shown in Figure Q.5B. Write the Get\_Bulk\_Request message to retrieve the value of every object in the tree. What are the benefits of Get\_Bulk\_Request when compared to Get\_Request messages? 3

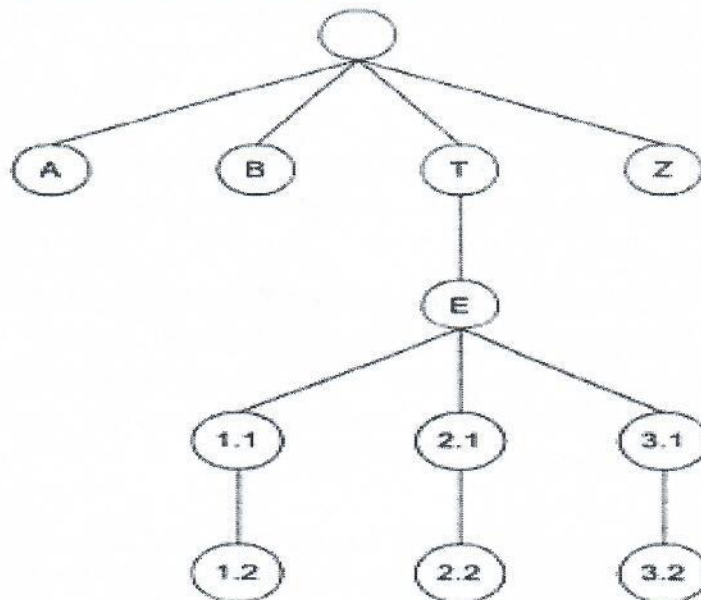


Figure Q.5B

- 5C. Discuss the table Augmentation(Row creation and deletion) feature of SNMPv2. With an example explain the Create-and-go row creation. 2