Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2171008 Date:29/11/2016 Subject Name: Data Communication and Networking (Departmental Elective -Time: 10.30 AM to 1.00 PM **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. (a) Draw and Explain the OSI reference model for network. Also gives its 0.1 07 application and critiques. What is Quality of Service? What is its significance? List the techniques **07 (b)** available to improve Quality of Service and Explain any two of them in detail. Give Comparison among Circuit switching, Packet switching and Message **Q.2** (a) 07 Switching. **(b)** Write a short note on Fast Ethernet in detail. **07** OR **(b)** Differentiate between the following: 07 (I) Active hub, Passive hub and Repeater. (II) Router and Gateways. Properly Explain the Channel allocation problem. Also explain its solution in **Q.3** 07 (b) List the Data Link Layer design issues. What is framing? List all methods used 07 for framing and explain any two methods used for framing in detail. (a) List the Multiple access protocols used for the wireless network and Explain any 0.3 07 two of them in detail. Explain the need of Sliding Window Protocol at Data Link Layer. Prove that **07 (b)** Selective Repeat will offer minimum channel overhead as compared to it's all other variants. Explain addressing at network layer. How different classes are defined for **Q.4** 07 addressing at network layer? What do mean by subnetting and supernetting? What is the role of routing algorithms at network layer? Explain Distance Vector 07 routing algorithm in detail. OR Explain RSVP – The Resource Reservation protocol in detail. **Q.4 07** (a) (b) List the Elements of Transport Layer and explain two of them. **07** What is Domain Name System? Describe in details the Resource Records and 07 **Q.5** Name server for the Domain Name System. Answer the following questions. (I) RSA algorithm (II) Transposition Cipher. **07 (b)** (a) What is Digital Signature? List the methods used for Digital Signature and **Q.5** 07 explain them in detail. Explain the e-mail architecture and services. Write short note on POP3 and **07**

SMTP.