QP CODE : 825300

(Time: 3hrs)　　　　　　　　　　(Marks 80)

NB: 1. Question No 1 is compulsory.
　　　2. Attempt any three out of the remaining five questions.

Q1. (a) What are the various issues associated with resource allocation?　　05
　　　(b) Explain the concept of slow start mechanism of TCP　　05
　　　(b) Differentiate between proactive and reactive routing protocols　　05
　　　(d) Define the factors that affect network performance?　　05

Q2. (a) An Engineering college in India has 3 departments with 5 labs in each dept,　　12
　　　all housed in one building. Departments are on separate floors. There are 20
　　　PCs in each lab and 5 servers which are all placed in a server room on the first
　　　floor. Each department and lab are identified by a unique subnet ID. All
　　　departments are connected via a LAN. The college has been sanctioned
　　　additional two new branches which will be housed in a new building 1 km
　　　away. Students in this building are to be given access to high bandwidth
　　　applications like online distance learning courses, MOOCs etc. Design the
　　　proposed Campus Network with detailed IP addressing using Class C
　　　addressing and subnetting.

Q2. (b) Discuss the characteristics and functions of each layer of a hierarchial network　　08
　　　design.

Q3. (a) Compare and contrast: i) RIPv1 and RIPv2 ii) EIGRP and OSPF　　10
Q3. (b) Explain the Random Early Detection method of congestion avoidance. What is　　10
　　　the significance of Average Queue length in this method?

Q4. (a) How are Wireless LAN controllers configured for deterministic　　10
　　　Redundancy? Compare N+1, N+N and N+N+1 WLC redundancy

Q4. (b) What is hidden terminal problem? Explain the MACA/W and MACA-BI　　10
　　　algorithms.

Q5. (a) Explain the AODV routing protocol. How does it differ from the dynamic　　07
　　　source routing (DSR) protocol?

Q5. (b) What are the deciding parameters for OSPF routers to become neighbours?　　07
　　　Explain the role of DR and BDR in OSPF. How are the DR and BDR elected?

Q5. (c) Convert the following MAC addresses to EUI-64 addresses:　　06
　　　　i) 0090.2716.fd0f ii) 0c0c.dede.1234
　　　Use the prefix 2001:db8:1:1/64 for each address.

Q6.　　Write short notes on: (any two):　　20
　　　i)　　Data Center Virtualization technologies
　　　ii)　　TCP congestion control mechanisms
　　　iii)　　IPv6 addressing
　　　iv)　　Software Defined Networking.