

**2015**

**MCA**

**4th SEMESTER EXAMINATION**

**COMPUTER NETWORK**

**PAPER—MCA-404**

*Full Marks : 100*

*Time : 3 Hours*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

*Answer Q. No. 1 and any four from the rest.*

1. Answer any *five* questions : 5×2
- (a) What is guided media and unguided media? Give examples.
  - (b) What is piggy-backing?
  - (c) What are the differences between TCP and UDP?
  - (d) What is MAC address?

*(Turn Over)*

- (e) Differentiate between TCP/IP and OSI reference model.
- (f) What is subnet mask? Explain with example.
- (g) Differentiate between packet switching and circuit switching network.
2. (a) What is Private IP and Public IP? Why concept of Private IP and Public IP is required? Give the various ranges of Private IP. 2+2+2
- (b) What is NAT and PAT? With the help of a suitable diagram explain the function of NAT and PAT. 2+3
- (c) What is port address? Describe various types of port address with their ranges. 4
3. (a) What do you mean by congestion control? Briefly describe about any type of congestion control algorithm. 1+5
- (b) How a connection is established and terminated by TCP? Explain in detail. 5
- (c) Find Manchester and Differential Manchester encoding for the binary data:  
100110111. 2+2

4. (a) Draw IPv4 datagram header format and explain it. 7
- (b) Explain about various type of frame format of HDLC with their functions. 2+2+2
- (c) What is the difference between router and switch? 2
5. (a) What is ARP? Describe the function of ARP in detail. 1+5
- (b) What is the basic difference between Pure ALOHA and Slotted ALOHA? 3
- (c) Draw the flowchart of CSMA/CD protocol. 6
6. (a) You are given a slot of IP address of 129.230.0.0 for an organization. You have to create 1024 subnetwork.
- (i) What will be the new subnet mask?
- (ii) What will be the network address of the last network?
- (iii) What will be the broadcast address of last network? 2+2+2
- (b) Describe in detail about the following: 3×2
- (i) Route poisoning.
- (ii) Poison reverse.

- (iii) Split horizon.
- (c) What is autonomous system ? What is the metric of OSPF routing protocol?  $1\frac{1}{2}+1\frac{1}{2}$
7. (a) What is packet switching? Explain two different approaches of packet switching. 4
- (b) Discuss the different factors affecting congestion control algorithms. 3
- (c) How does a token ring network work? In what way is it different from Ethernet? 4
- (d) Describe and distinguish between FDMA, TDMA and CDMA. 4
8. Write short notes (any three) : 3×5
- (a) DNS ;
- (b) IPv6 ;
- (c) FTP ;
- (d) Multiplexing in Transport Layer ;
- (e) CSMA/CA.

**Internal Assessment — 30**

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