



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 214202**

Roll No.

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**M. C. A.**

(SEM. IV) THEORY EXAMINATION, 2014-15  
**COMPUTER NETWORKS**

Time : 3 Hours]

[Total Marks : 100

- Note :** (i) Attempt all the questions, choices are within each question.  
(ii) All questions carry equal marks.

**1 Attempt any four parts of the following : 5×4=20**

- (a) Differentiate among circuit switching, packet switching and message switching.
- (b) Describe the following :
  - (i) Repeater & Gateway
  - (ii) Hub & Switches
- (c) What is ISDN ? Draw the ISDN communication architecture.
- (d) A file size is 0.008 GB. How long does it take to download this file using a 8-MBPS channel ?
- (e) Differentiate among the following :
  - (i) Protocol & Interface
  - (ii) Standard & Service
- (f) Differentiate between TCP & UDP protocols.

**2 Attempt any two parts of the following : 10×2=20**

- (a) A large population of ALOHA users manage to generate 50 requests/sec, including both originals and retransmissions. Time is slotted in units of 40 msec.
  - (i) What is the chance of success on the first attempt ?
  - (ii) What is the probability of exactly k collisions and then a success ?
  - (iii) What is the expected number of transmission attempts needed ?
- (b) Describe & differentiate between Token ring and Token bus LAN standards.
- (c) Discuss the following in the context of IEEE 802.3 standard :
  - (i) The binary exponential backoff algorithm
  - (ii) 802.3 cabling
  - (iii) Encoding techniques
  - (iv) 802.3 performance.

**3 Attempt any two parts of the following : 10×2=20**

- (a) Compare and contrast CSMA/CD with CSMA/CA.
- (b) What is unicast routing ? Discuss unicast routing protocols.
- (c) What is congestion ? Name the techniques that prevent congestion. Discuss any two techniques in brief.

**4 Attempt any two parts of the following : 10×2=20**

- (a) (i) What are the different presentation layer design issues ? Explain.
- (ii) Explain transport layer quality of service parameters in detail.
- (b) Describe hamming code. How it is used for error detection and correction ? Illustrate with the help of a suitable example.
- (c) Draw TCP segment Header Format and explain its various field.

**5 Write short notes on any four parts of the following : 5×4=20**

- (a) DNS in the internet
  - (b) Electronic mail
  - (c) SMTP
  - (d) File transfer protocol
  - (e) Voice over IP
  - (f) SNMP.
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