

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

06513 **Term-End Examination**
June, 2015

**BCS-041 : FUNDAMENTALS OF COMPUTER
NETWORKS**

Time : 3 hours

Maximum Marks : 100

Note : Question no. 1 is compulsory. Attempt any three questions from the rest. Use of calculators is allowed.

1. (a) Why is serial data transmission faster than parallel data transmission ? Explain. 5
- (b) What is better for computer communication — analog or digital ? Justify your answer. 5
- (c) Why are 'Hash functions' called 'one-way functions' ? Explain. 5
- (d) Differentiate between SVC and PVC of X.25. 5
- (e) Write the steps of Distance Vector Routing Algorithm. Give an example to show its working. 10

- (f) What is Windowing ? How is flow control and reliability achieved through windowing at transport layer ? 10
2. (a) Write a difference between pure ALOHA and slotted ALOHA. If the throughput of pure ALOHA is $S = Ge^{-2G}$, show that the maximum throughput (S_{\max}) is 0.184. 10
- (b) Explain the working of 3-way handshake used in TCP, using a suitable diagram. 10
3. (a) Calculate CRC, if the message is $x^7 + x^5 + 1$ and the generator polynomial is $x^3 + 1$. 10
- (b) Explain the working of ARP using a diagram. How is it different from RARP ? Explain. 10
4. (a) Explain RSA algorithm with example. 10
- (b) What is the difference between classful addressing and classless addressing ? How does classless addressing result in decrease in the table size ? 10

5. Write short notes on the following :

4×5=20

- (a) **Frame Relay**
 - (b) **Fiber Optics Cables**
 - (c) **IMAP and POP**
 - (d) **OSI Model**
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