

Exam. Code : 107205

Subject Code : 1801

Bachelor of Computer Application (BCA) 5<sup>th</sup> Semester

## COMPUTER NETWORKS

## Paper-I

Time Allowed—3 Hours] [Maximum Marks—75

**Note** :—Attempt any **five** questions. All questions are of equal marks.

1. (a) Describe briefly the various layers and functions of OSI model. 7.5  
(b) Compare OSI reference model with TCP/IP model. 7.5
2. (a) Define Network. List various types of networks and topologies. 7.5  
(b) What are twisted pair cables ? Write down their applications. 7.5
3. (a) How many types of modems are available in the market ? 7.5  
(b) Differentiate between circuit switching and packet switching. 7.5

4. Write short notes on the following :
- (a) PCM 7.5
  - (b) ISDN service transmission. 7.5
5. (a) What is CSMA/CD ? How does it work ? 7.5
- (b) Distinguish between 1-persistent and non-persistent CSMA. 7.5
6. Illustrate the need of error control. Compare and contrast flow control and error control. 15
7. (a) How IP addresses are assigned in computer networks ? 7.5
- (b) What do you mean by 'www' and Internet ? 7.5
8. (a) How cryptography helps in providing security over a network ? 7.5
- (b) What are different network services ? Explain one of them. 7.5

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JAVA PROGRAMMING LANGUAGE

Paper-IV

Time Allowed—3 Hours] [Maximum Marks—75

Note :— Attempt any five questions.

1. Java is secure, robust, and platform independent. Explain the features of Java that make it support this statement. 15
2. Java has two selection statements – if-else-if ladder and the switch statement. Explain the structure of each of them. Give an example to show when it is better to use the switch statement. 10,5
3. What is a method in Java ? How is it defined and called ? Explain the concept of method overloading and overriding with the help of an example. 2,6,7
4. Explain the basic building blocks of the object oriented paradigm. How is this paradigm better than the procedural ? 10,5

5. What is a thread ? How is it different from a process ? Explain the basic constructs to create threads and use them to synchronize asynchronous tasks. 3,2,10
6. Why are exceptions raised ? Explain the Java keywords for catching and handling exceptions. 5,10
7. Which package does contain the methods for handling input/output ? Explain the procedure to read from console characters and strings. 3,12
8. Define an interface for implementing a stack of integers. Use this stack to have two different implementations — one using a fixed sized stack and another using a flexible stack which can grow in size if needed.

15

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OPERATING SYSTEM

Paper-III

Time Allowed—3 Hours] [Maximum Marks—75

**Note** :—Attempt any **five** questions. All questions carry equal marks.

1. Why an operating system is known as resource manager ? Differentiate the features of the parallel systems and time sharing systems. 15
2. (a) Discuss the concept of states of process. 7.5  
(b) Compare FCFS and SJF process scheduling techniques. 7.5
3. What is meant by critical section problem ? How it is managed ? Explain the role of semaphores for process synchronization. 15
4. Compare the following techniques :  
(a) Paging and Segmentation 7.5  
(b) LRU and optimal page replacement algorithm. 7.5

5. What is the need of virtual memory ? Discuss the benefits of virtual memory and use of swapping. 15
6. What is the need of Disk Scheduling ? How SCAN and C-LOOK algorithms schedule the disk requests ? Explain. 15
7. (a) How deadlock situation is handled by an operating system ? Explain. 5
- (b) Discuss the methods for the following :
- (i) Deadlock Detection 5
- (ii) Deadlock Recovery. 5
8. Write short notes on the following :
- (a) Thrashing 7.5
- (b) Banker's Algorithm. 7.5

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WEB TECHNOLOGIES

Paper-II

Time Allowed—3 Hours]

[Maximum Marks—75

**Note** :—Attempt any **five** questions, all questions carry equal marks.

1. (a) What do you mean by Markup Language ? Write important features of HTML. What are its drawbacks ?  
(b) What is meant by client side programming ? Which languages are used for client side programming ?
2. Explain lifecycle of Java Servlet.
3. Give differences between client side and server side programming. Which languages are used for both ? Give an example of both.
4. Explain inbuilt functions (with examples) of PHP related with Strings, Arrays and Files.
5. Explain DDL and DML statements of MySQL. Which are various data types of MySQL ?

6. What is error-handling ? Explain error-handling features of PHP. Give examples.
7. Explain following :
  - (a) Cookies
  - (b) Session Management
  - (c) GET and POST.
8. Explain general architecture of e-commerce web site. Which technologies are used in developing e-commerce web site ?