Exam. Code : 107205
Subject Code : 1772

Bachelor of Computer Application (BCA) 5th Semester

COMPUTER NETWORKS

Paper—I

Time Allowed—3 Hours] [Maximum Marks—75

Note :—There are **EIGHT** questions. Candidates are required to attempt any **FIVE** questions. All questions carry equal marks.

SECTION—A

1. Which are various network topologies ? Explain the benefits and limitations of each.

2. Explain different types of guided and unguided transmission media.

SECTION—B

3. What is modulation ? What is PCM ? Explain different types of Modems.

4. (a) Which are different transmission modes ?

   (b) Explain the difference between circuit switching and packet switching.

SECTION—C

5. What is Ethernet ? Explain 802.3.

6. Explain how error detection and correction is performed by Data Link Layer.

SECTION—D

7. What is use of Cryptography ? Explain public key and private key encryption.

8. Explain any three network services.

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WEB TECHNOLOGIES

Paper—II

Time Allowed—3 Hours] [Maximum Marks—75

Note :— Attempt **five** questions, selecting at least **one** question from each Section. The **fifth** question may be attempted from any Section. All questions carry equal marks.

SECTION—A

1. (a) Write important features of HTML 5. What are its drawbacks ?

   (b) What is meant by client side programming ? How it differs from server side programming ? Which languages are used for client side programming ?

2. Explain the use of HTML, CSS, JavaScript and PHP in designing a web page.

SECTION—B

3. Explain in-built functions related with Strings (with examples), Arrays and Files in PHP.

4. (a) Explain Session management in PHP.

   (b) Which are various data types of MySQL ? Explain database connectivity with MySQL using PHP.

SECTION—C

5. Give examples where SSL will be required. Also write the steps to host a web site.

6. How are AI and Machine Learning helpful in creating websites ?

SECTION—D

7. Write a detailed note on Emerging Web Technologies.

8. What are advantages and disadvantages of SPA ? How is Angular JS helpful in creating SPA websites ?

Exam. Code : 107205
Subject Code : 1775

Bachelor of Computer Application (BCA) 5th Semester
JAVA PROGRAMMING LANGUAGE
Paper—IV

Time Allowed—3 Hours] [Maximum Marks—75

Note :— There are ***eight*** questions. Candidates are required to attempt any ***five*** questions. All questions carry equal marks.

SECTION—A

1. (a) Discuss the following terms with examples : keywords, identifiers, literals.

   (b) Write and explain the structure of a Java program.

   (c) How are comments added in a Java program ? 3,8,4

2. Explain any five string handling functions. 15

SECTION—B

3. (a) How is a package created and used in Java ? 15

   (b) What are the advantages of using the concept of packages ? 10,5

4. Create an inheritance structure for vehicles. How will you use final, this, and super keywords while developing code for it ? 5,10

SECTION—C

5. Why is multi-threading important ? Write down the complete life cycle of a thread. 3,12

6. What is exception handling ? Explain the meaning of different keywords associated with exception handling. 5,10

SECTION—D

7. How does Java handle data for permanent storage ? Write code to create, read, and close a file structure for storing data for long term use. 5,10

8. Suppose there is a MySQL database to store data about online applicants of a recruitment drive. Write down statements to connect a Java program to the MySQL database and add, manipulate data. 15

Exam. Code : 107205
Subject Code : 1774

Bachelor of Computer Application (BCA) 5th Semester

OPERATING SYSTEM

Paper—III

Time Allowed—3 Hours] [Maximum Marks—75

Note :—There are **EIGHT** questions. Candidates are required to attempt any **FIVE** questions. All questions carry equal marks.

SECTION—A

1. Define an Operating System. Elaborate in detail the different types of Operating Systems.
2. Using the given information about the processes, calculate Average Waiting Time and Average Turnaround Time of each process under following scheduling algorithms :
   (a) First Come First Served
   (b) Shortest Job First
   (c) Round Robin (with time slice of 4 units)

Process	Burst	Priority	Arrival time
P1	19	3	0
P2	15	2	3
P3	10	1	12
P4	6	4	12
P5	3	3	15

SECTION—B

3. Define Semaphores. In which cases semaphores are used and how these can be implemented ?

4. Define and distinguish between Paging and Segmentation methods of memory management giving suitable examples.

SECTION—C

5. Explain with the help of suitable examples the various Page Replacement algorithms.

6. Discuss the issues concerning Disk Scheduling and explain the various algorithms available for disk scheduling with the help of suitable examples.

SECTION—D

7. When is a system said to be in the deadlock state ? What are the characteristics of deadlocks ?

8. Discuss the various methods of deadlock avoidance and prevention.