BTECH (5th SEM) Examination, 2021
DATA COMMUNICATION
Paper-CS501

Time Allotted: Three Hours **Maximum Marks: 70**

SECTION-A

Note: *1.Attempt any 5question from 1 to 7and each question carry 5 marks.* 5X5=25

1. Explain about WAN.
2. Explain the differences between Pure and Slotted ALOHA Systems and compare their efficiency.
3. Explain various categories of networks.
4. Explain Simplex, Half Duplex and Full Duplex Communication.
5. Write about Synchronous and Asynchronous transmission with neat diagrams.
6. What is the significance of Bridges? Explain the different types of Bridges.
7. Explain the Network layer in the internet.

SECTION-B

Note: Attempt any 3 question from 1to 7and each question carry 15marks. 3X15=45

1) Explain the different topologies of the network.
2) Explain the TCP/IP model?
3) Explain the significance of Switching? What are different switching techniques used in computer networks? Discuss.
4) Explain the Services of Transport layer.
5) Write about electronic mail in detail.
6) Explain leaky bucket and token bucket algorithms.
7) With neat sketch explain twisted pair cables, connectors of twisted pair cables with neat graph. Explain the performance of twisted pair cables.

BTECH (5thSEM) Examination, 2021

OPERATING SYSTEM

Paper-CS502

Time Allotted: Three Hours **Maximum Marks: 70**

SECTION-A

Note: *1.Attempt any 5question from 1 to 7and each question carry 5 marks.* 5X5=25

1. Explain the concept of Batch processing.
2. Explain Time sharing operating system.
3. Describe various space allocation strategies with their merits/demerits.
4. What is an operating system? Write down its characteristics.
5. Discuss different type of operating system with example.
6. Compare paging and segmentation.
7. What is buffer cache? Explain.

SECTION-B

Note: Attempt any 3 question from 1to 5and each question carries 15marks. 3X15=45

1. What is meant by a System call? How it can be used? How does an application program use these calls during execution?
2. Define Process States. Draw the diagram of PCB.
3. Compare Paging and Segmentation with example.
4. What is Virtual Memory? Explain the concept of demand paging.
5. Explain the concept of dirty bit for improving the performance during page fault.

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DATA BASE MANAGEMENT SYSTEM

Paper-CS503

Time Allotted: Three Hours **Maximum Marks: 70**

SECTION-A

Note: *1.Attempt any 5question from 1 to 7and each question carry 5 marks.* 5X5=25

1. What is SQL? Explain.
2. Explain DBMS Architecture.
3. Difference between Generalization and specialization.
4. Difference between Physical and logical data independence.
5. Explain strong and weak entities. How weak entity can be converted to a strong entity.
6. What are integrity constraints? Explain various types of integrity constraints with suitable example.
7. What is Cursor Management? Explain nested and parameterized cursors.

SECTION-B

Note: Attempt any 3 question from 1to 5and each question carries 15marks. 3X15=45

1. Explain Super key, primary key, and candidate key with examples.
2. Develop an ER diagram for library management.
3. Explain Relational algebra with taking a suitable example.
4. What is redundancy? What are the problems caused by the redundancy?
5. What is distributed database system? How it is different from the centralized database system? Give the use of distributed system.

BTECH (5thSEM) Examination, 2021

COMPUTER GRAPHICS & MULTIMEDIA

Paper-CS504

Time Allotted: Three Hours

Maximum Marks: 70

SECTION-A

Note: *1.Attempt any 5question from 1 to 7and each question carry 5 marks.* 5X5=25

1. (a) List any four goals of software architecture.
   (b) What are the design qualities attributes.
2. (a) What is principle of least knowledge?
   (b) What are the essential elements of a design pattern?
3. (a) Describe a cursor.
   (b) What is an adapter?
4. (a) What is a proxy?
   (b) Explain the purpose of an observer.
5. (a) What is the functionality of a visitor?
   (b) Explain the concept of monoglyph.
6. Explain the role of template method in designing of the patterns.
7. Explain the Architectural patterns, Reference models and Reference architectures

SECTION-B

Note: Attempt any 3 question from 1to 5and each question carry 15marks. 3X15=45

1. (a) What is software architecture? Explain.
   (b)Draw the process flow diagram for the Cost Benefit Analysis Model (CBAM) and discuss with the help of an example.
2. (a) Clearly bring out the difference between inheritance and composition along with their merits and merits.
   (b) What are the different approaches to select a Design Pattern? Explain.
3. (a) Briefly explain Singleton Design Pattern.
   (b) What are the consequences of Abstract factory Design Pattern?
4. a) Discuss in detail about the narrow interface implementation approaches. (b) Draw and explain the structure of bridge pattern.
5. (a) List and explain the variants and alternatives of iterator pattern.
   (b) What is the motivation for mediator pattern? Explain.

BTECH (5thSEM) Examination, 2021

COMPUTER PROGRAMMING (UNIX)

Paper-CS505

Time Allotted: Three Hours

Maximum Marks: 70

SECTION-A

Note: *1.Attempt any 5question from 1 to 7and each question carry 5 marks.* 5X5=25

1. Distinguish between hard links and soft links with suitable example.
2. Explain the three standard files with respect to UNIX operating system.
3. Explain internal and external commands with example.
4. Briefly explain set and shift commands in UNIX to manipulate positional parameters with example.
5. With an example script explain the differences between 'while' and 'until' statements.
6. Explain the system call used to create a shared memory segment.
7. What are process identifiers? Mention the commands for getting different IDs of calling process.

SECTION-B

Note: Attempt any 3 question from 1to 5and each question carry 15marks. 3X15=45

8. **(a)** Explain be architecture of UNIX operating system with a neat diagram.
   (b) Illustrate with a diagram, the typical UNIX file and explain different types of files supported in UNIX.
9. **(a)** Explain grep command with all options **(b)** Briefly explain the different ways of addressing used in sed with example(6 marks)
10. What is shell programming ? Write a menu-driven shell script to perform the following
    i) List of users who are logged in
    ii) List of files in the current directory
    iii) Today's date
    iv) Quit to UNIX **(b)** Explain with an example 'while' and 'for' loop in shell programming.
11. **(a)** Explain the mechanism of process creation using system calls in UNIX.
    (b) Explain the following environment variables with example :
    i)SHELL
    ii) LOGNAME
    iii) PATH
    iv) PS2
12. **(a)** Explain the string handling function supported by PERL and also write a PERL script to convert a given decimal number to binary equivalent. **(b)** Explain the following in PERL with example
    i) split
    ii) join