**CIS 2019-2020**

1. What is the advantage of port 80 within distributed architectures?

Ans: -An advantage of using port 80 is that it is usually not blocked by firewalls. Port 80 is the default port used for the world wide web. Using port 80 justifies the world web for this kind of service.

1. In Java RMI which file is used by rmic to generate stub and skeleton files?

Ans: -

1. Which new programming paradigm was introduced in the programming language SIMULA 67?

Ans: -C++ (class and object, inheritance and abstract datatypes)

1. What is the transport protocol of Web Services?

* Ans: - UDDI (Universal Description, Discovery and Integration)

1. What programming paradigm is best suited to be used in the programming of Graphical User Interfaces (GUI)?

Ans: -Even Driven programming paradigm.

1. Give two examples of a protocol in the context of distributed architectures that is not specified in an RFC (Request for Comments).

* Ans: -XMLRPC, SOAP Web Services, Java RMI and COBRA

1. ftp, telnet, smtp and pop3 are examples of standards that are still in use today. How were these standards defined?

Ans: -

1. The programming language AspectJ became the de facto standard for implementing which programming paradigm?

Ans: -It has become the de facto standard for implementing aspect-oriented programming due separating concerns of a software application to improve modularization. The separation of concerns (SoC) aims for making a software easier to maintain by grouping features and behavior into manageable parts which all have a specific purpose and business to take care of.

1. What is the purpose of the UDDI protocol for Web Services?

Ans: -

* A registry of all web service's metadata, including a pointer to the WSDL description of a service.
* A set of WSDL port type definitions for manipulating and searching that registry.

1. Name four programming languages that provide an implementation of the XML-RPC protocol.

Ans: - Perl, Java, Python, C, C++, PHP

1. In the context of Object-Oriented Programming an “Object” is defined by identity, state and behavior. In contrast to that, what defines a class?

Ans- A class is defined by a unique name, attributes, and methods.

1. When Bjarne Stroustrup developed C++, he drew ideas from the two progamming languages SIMULA 67 and C. In what way? [8 marks]

Ans: -

Simula67: - Introduced Classes and Inheritance therefore the first Object Oriented Programming language.to write efficient systems programs in the styles encouraged.

C: - Data types, data abstraction.

1. GUI’s (Graphical User Interfaces) are a typical application area for event driven programming. Why?

Ans: -

Because in GUI there is more choice for the users. There is not any set of flow in the execution of the programs. User can trigger any events in any time. So, event driven programming is it’s typical application.

1. Name two protocols that were defined in an RFC and provide a short description of what they are for [5 marks each

Ans: - **RFC 764: -**The purpose of the TELNET Protocol is to provide a fairly general, bi-directional, eight-bit byte-oriented communications facility. Its primary goal is to allow a standard method of interfacing terminal devices and terminal-oriented processes to each other. It is envisioned that the protocol may also be used for terminal-terminal communication ("linking") and process-process communication (distributed computation)

**RFC 765: -** The objectives of FTP are 1) to promote sharing of files (computer programs and/or data), 2) to encourage indirect or implicit (via programs) use of remote computers, 3) to shield a user from variations in file storage systems among Hosts, and 4) to transfer data reliably and efficiently. FTP, though usable directly by a user at a terminal, is designed mainly for use by programs.

1. Who owns and maintains CORBA [5 marks] and discuss today’s relevance of CORBA in distributed software systems [5 marks]**?**

Ans: - Omg own COBRA.

It describes a messaging mechanism by which objects distributed over a network can communicate with each other irrespective of the platform and language used to develop those objects that other xml-based protocol cannot provide.

1. Explain the relevance of asynchronous communication in today’s software systems with reference to the term “Message Oriented Middleware” [10 marks]*.*

Ans: -

Synchronous processing can create a **blocked wait state** — that is no processing can be done until a task has completed. This is not efficient and can frustrate the user experience.

Asynchronous on the other hand can launch a task and continue processing without waiting or blocking.

In message oriented middleware, if certain state is blocked or take time to process. Then other requested process will be blocked and take much time. In the high scale, this problem can drastically slow down the server.

1. Explain or discuss the following statement: “the programming language C# was introduced as a strategic, commercial decision”.

Ans:-

**A strategic**:- suitable for writing applications for both hosted and [embedded systems](https://en.wikipedia.org/wiki/Embedded_system), ranging from the very large that use sophisticated [operating systems](https://en.wikipedia.org/wiki/Operating_system), down to the very small having dedicated functions.

**commercial decision: -**  C# applications are intended to be economical with regard to memory and [processing power](https://en.wikipedia.org/wiki/Processing_power) requirements

1. What is the difference between synchronous and asynchronous communication in middleware?

Ans: - Synchronous processing can create a **blocked wait state** — that is no processing can be done until a task has completed. This is not efficient and can frustrate the user experience.

Asynchronous on the other hand can launch a task and continue processing without waiting or blocking.

1. What are reasons why programming languages come into existence? Provide two examples. [5 marks each]

Ans: - as to make thing simpler and for research purpose

1. Explain, why embedded systems are a typical application area for event driven programming. [10 marks]

Ans:

(May be same as GUI but embedded system ma event driven programming embedded teti use hunna)

1. Classes and Objects: A class is defined by a unique name, attributes, and methods. In contrast to that, what defines an object?

Ans: - Object” is defined by identity, state and behavior.

1. Name two classical problems that need to be addressed when implementing concurrent systems.

Ans: -

[**Dining-Philosphers Problem**](https://www.geeksforgeeks.org/operating-system-dining-philosopher-problem-using-semaphores/)**:**  
The Dining Philosopher Problem states that K philosophers seated around a circular table with one chopstick between each pair of philosophers. There is one chopstick between each philosopher. A philosopher may eat if he can pickup the two chopsticks adjacent to him. One chopstick may be picked up by any one of its adjacent followers but not both. This problem involves the allocation of limited resources to a group of processes in a deadlock-free and starvation-free manner.

[**ounded-buffer (or Producer-Consumer) Problem**](https://www.geeksforgeeks.org/producer-consumer-solution-using-semaphores-java/)**:**  
Bounded Buffer problem is also called producer consumer problem. This problem is generalized in terms of the Producer-Consumer problem. Solution to this problem is, creating two counting semaphores “full” and “empty” to keep track of the current number of full and empty buffers respectively. Producers produce a product and consumers consume the product, but both use of one of the containers each time.

1. In event driven programming which software pattern is typically used to implement a subscribe/notify behaviour of the system where handlers subscribe to a subject that notifies the handlers of events of interest to them?

Ans: -

1. Describe a typical application area where event driven programming is useful and relevant.

Ans: - Embedded system

1. What was a main driver to develop C# in the year 2000 even though the similar programming language Java already existed since 1995? [7 marks]

Ans: - Long ago, there were disagreements in what may or may not be used in Java. Sun’s position was extremely strong and they denied features down in the implementation which were asked for by Microsoft.

Microsoft was prevented from using those features which mattered to them so much, that they created a new language, thus C#. This language on the surface looked very much like Java, but down in its guts it was much better suited as an implementation language.