**Question 1:**

Answer:- 40 25000 60000

**Question 2:**

Answer:-

Constructor 2 called

Constructor 1 called

**Question 3:**

Answer:-

i: 2

j: 0

Sum is: 2

**Question 4:**

Answer:-

**4.a**

Step 1: The list has one element sorted

Initial: {17, 15, 3, 19, 2}

After Step 1: {2, 15, 3, 19, 17}

Step 2: The list has two elements sorted

After Step 2: {2, 3, 15, 19, 17}

Step 3: The list has three elements sorted

After Step 3: {2, 3, 15, 19, 17}

Step 4: The list has four elements sorted

After Step 4: {2, 3, 15, 17, 19}

So, the final sorted list is {2, 3, 15, 17, 19}.

**4.b.**

using System;

class SelectionSort

{

static void Sort(int[] a)

{

int n = a.Length;

for (int i = 0; i < n - 1; i++)

{

// Find the minimum element in the unsorted part of the array

int minIndex = i;

for (int j = i + 1; j < n; j++)

{

if (a[j] < a[minIndex])

{

minIndex = j;

}

}

// Swap the found minimum element with the first element

int temp = a[minIndex];

a[minIndex] = a[i];

a[i] = temp;

// Print the state of the array after each step

Console.Write($"Step {i + 1}): ");

PrintArray(a);

}

}

static void PrintArray(int[] arr)

{

foreach (var num in arr)

{

Console.Write(num + " ");

}

Console.WriteLine();

}

static void Main()

{

int[] A = { 17, 15, 3, 19, 2 };

Console.WriteLine("Initial state:");

PrintArray(A);

// Sorting using selection sort

Sort(A);

Console.WriteLine("\nFinal sorted state:");

PrintArray(A);

}

}

**Question 5:**

Answer:-

5 items that you would expect to find in a Risk Management Plan are:-

1. Risk Identification:

The plan outlines the process for identifying potential risks associated with the project. This involves techniques such as brainstorming sessions, risk checklists, historical data analysis, and expert interviews. The goal is to comprehensively identify all possible threats and opportunities that could impact the project.

1. Risk Assessment:

In this part of the plan, risks are assessed based on their likelihood of occurrence and their potential impact on project objectives. This involves assigning a probability and severity rating to each identified risk. Commonly used methods include qualitative assessment (low, medium, high) and quantitative analysis (numerical probabilities and impact values).

1. Risk Response Planning:

The plan outlines the strategies and actions that will be taken to address identified risks. Responses can include risk avoidance, mitigation, transfer, or acceptance. It also details contingency plans for dealing with risks that cannot be entirely eliminated. The goal is to minimize the impact of risks on project success.

1. Risk Monitoring and Control:

In this section, the plan defines the process for ongoing monitoring of identified risks throughout the project lifecycle. This includes regular reviews, status updates, and the use of key performance indicators (KPIs) to track the effectiveness of risk responses. Additionally, it outlines procedures for implementing changes to the risk management plan as necessary.

1. Communication Plan:

The plan outlines how information about risks will be communicated within the project team and to relevant stakeholders. This includes reporting formats, frequency of updates, and the responsible parties for communication. Clear communication ensures that all stakeholders are informed about the status of risks and the actions being taken.

**Question 6:**

Answer:-

Unit Testing:-

Unit testing refers to the testing of individual units like modules, classes, and methods. By performing individual testing, we can find the defects and bugs of individual units at the early stage, and we can fix the problems.

Integration Testing:-

Integration testing refers to the testing of different components in a bundle to ensure they work together as intended. By performing integration testing, we can find the bugs in the whole software and program.

Regression Testing:-

Regression testing refers to the testing functionality in the program while recent changes are performed in the program to ensure that doesn’t break existing functionality in the program.

**Question 7:**

Answer:-

The three most popular service models in cloud computing are:-

1. Infrastructure as a service (IAAS)
2. Platform as a service (PAAS)
3. Software as a service (SAAS)
4. Infrastructure as a Service (IAAS):-

Cloud computing provides many services, the most popular one is Infrastructure as a Service (IAAS). IAAS provides us the virtual computing resources over the internet. It includes virtual machines, storage, and networking components. We can lease the operating systems, applications, and development frameworks while the cloud provider takes care of the underlying infrastructure. Example Providers: Amazon Web Services (AWS) EC2, Microsoft Azure Virtual Machines, Google Compute Engine.

1. Platform as a Service (PAAS):-

Another popular service is Platform as a Service (PAAS). PAAS provides us with a platform that includes the necessary tools and services to develop, test, deploy, and manage applications without the complexity of managing the underlying infrastructure. It abstracts away details of the infrastructure, allowing developers to focus on application development.

1. Software as a Service (SAAS):-

Another popular service is Software as a Service (SAAS). SAAS provides us with software applications over the internet, allowing users to access the software without worrying about hardware, installation, maintenance, or updates. Applications are typically accessed through a web browser, and users subscribe to the service on a pay-as-you-go basis.

Amazon Sage Maker primarily falls under the category of Machine Learning as a Service (MLaaS), which is a specialized form of Platform as a Service (PaaS) within the broader context of cloud computing.

Advantages of MLaaS for SageMaker:

1. Simplified Workflow: MLaaS platforms like Amazon SageMaker simplify the ML workflow with pre-configured environments, enabling focus on model development rather than infrastructure management.
2. Scalability: MLaaS offers scalable computing resources for handling large ML workloads, crucial for distributed training and horizontal scaling.
3. Managed Infrastructure: Cloud providers handle infrastructure details, such as computing resources and storage, freeing users from provisioning and hardware concerns.
4. Integration with Other Services: MLaaS platforms integrate seamlessly with various cloud services (e.g., storage, processing), streamlining the end-to-end ML pipeline.
5. Cost Efficiency: MLaaS operates on a pay-as-you-go model, providing cost efficiency by allowing users to pay for consumed resources, avoiding upfront investments.