SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur– 603203

DEPARTMENTOF INFORMATION TECHNOLOGY

QUESTION BANK

V SEMESTER

1908004- C# and .NET Programming

Regulation– 2019

Academic Year 2022–23(Odd Semester)

Prepared by

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SUBJECT :1908004 -C# and.NETProgramming

SEM/ YEAR: V Sem / III Year

UNITI C# LANGUAGE BASICS			
.Net Architecture – Core C# – Variables – Data Types – Flow control – Objects and Types- Classes and Structs – Inheritance- Generics – Arrays and Tuples – Operators and Casts – Indexers.			
PART– A			
Q. No	**Questions**	**BT Level**	**Competence**
1	What are the main objectives of . Net Framework?	BTL1	Remembering
2	Define Value Data type with example.	BTL2	Understanding
3	Give an example for Reference Data type.	BTL3	Applying
4	List Key characteristics of C# language	BTL1	Remembering
5	Why C# is related to .NET?	BTL5	Evaluating
6	Define CLR and list down the features of CLR.	BTL1	Remembering
7	Why C# is called type safe language?	BTL5	Evaluating
8	List some of the new features that are unique to C# language.	BTL1	Remembering
9	What are the two methods used in C# to initialize variable?	BTL1	Remembering
10	Express the uses of type inference? Give an example.	BTL2	Understanding
11	What are the major categories of data types in C#?	BTL1	Remembering
12	Compare value type and reference type.	BTL4	Analyzing
13	Classify the categories of flow control in C#.	BTL3	Applying
14	How do you write for loop in C#?	BTL4	Analyzing
15	What is the use of for each in C#? Give an example.	BTL2	Understanding
16	Differentiate classes and structures.	BTL4	Analyzing
17	Relate boxing and unboxing, provide suitable example for each.	BTL3	Applying
18	What are the two distinct types of inheritance?	BTL1	Remembering
19.	How does an array list differ from array?	BTL6	Creating
20	Construct a jagged array.	BTL6	Creating
21	What are generics in C#.NET? How to create generic class in C#?	BTL2	Understanding
22	What is the use of tuple in C#?	BTL1	Remembering
23	Give an example for user defined cast.	BTL3	Applying
24	Define indexers in C# with an example.	BTL2	Understanding
PART B			

1	Describe the architecture of .NET framework with neat diagram.(13)	BTL1	Remembering
2	i. Discuss various data types in C#.(7) ii. Describe the usage of for and for each loop with example in C#.(6)	BTL2	Understanding
3	Describe in detail about program control statements available in C# with suitable example.(13)	BTL1	Remembering
4	What is the use of Constructors? Analyse different types of constructors available in C# with examples.(13)	BTL4	Analyzing
5	List and Discuss the types of inheritance with an example. (13)	BTL2	Understanding
6	i. Describe how C# support multiple inheritance? Explain by giving an example. (7) ii. Discuss the difference with Class and structure with suitable examples(6)	BTL1	Remembering
7	i. What is an array? Discuss array class with a suitable example.(7) ii. Summarize the different types of type casting.(6)	BTL2	Understanding
8	i. Classify the types of arrays and features of arrays.(7) ii.Illustrate with example jagged array in C#.(6)	BTL3	Applying
9	i. Illustrate with example tuples in C#.(7) ii. Describe the purpose of checked and unchecked operators.(6)	BTL3	Applying
10	What is indexers? Indexers can be overloaded justify your statement with an example.(13)	BTL5	Evaluating
11	i.Write the program to sort the number in descending order. (7) ii. Write a C# program to find the factorial of given “N” number. (6)	BTL1	Remembering
12	i.Explain sealed classes and methods with example program. (7) ii. Write short notes on object class.(6)	BTL4	Analyzing
13	Explain in detail about creation generic classes and function with example program.(13)	BTL4	Analyzing
14	Develop a program to implement the operating overloading with an example program. (13)	BTL6	Creating
15	Explain in detail the structure of C# program with an example. (13)	BTL1	Remembering
16	What do you mean by structs in C# and explain with an example program	BTL2	Understanding
17	Illustrate Multi Level Inheritance with an example program	BTL3	Applying
PART C			
1	Create an array of 10 integers. Populate the array by giving the Input values. Find the first maximum, second maximum, first minimum and second minimum from the given input using C# program.(15)	BTL 6	Creating

2	i. Write a C# code to compare two strings using "Equals" Method.(8) ii. Write the program to sort the number in descending order.(7)	BTL5	Evaluating
3	Consider a student class with feet and inches as attributes which describes the height of the student. Write a C# program to overload the + operator and to find the average of N students. (15)	BTL 6	Creating
4	Develop a program to find area of various shapes rectangle, circle, and triangle. Use the concept of inheritance and polymorphism.(15)	BTL5	Evaluating
5	Develop a C# program using Generics and explain in detail.	BTL5	Evaluating

UNIT II C# ADVANCED FEATURES

Delegates – Lambdas – Lambda Expressions – Events – Event Publisher – Event Listener – Strings and Regular Expressions – Generics – Collections – Memory Management and Pointers – Errors and Exceptions – Reflection

PART A

Q. No	Questions	BTLevel	Competence
1.	Define delegates and uses of delegates.	BTL1	Remembering
2.	List the types of delegates in C#.	BTL1	Remembering
3	Why do you use lambda expression?	BTL5	Evaluating
4	How variables are used outside of lambda expression?	BTL2	Understanding
5	Evaluate the different ways of defining parameters in lambda Expression.	BTL5	Evaluating
6	What is the relationship between events and delegates?	BTL4	Analyzing
7	Point out the purpose of event listeners in C#.	BTL4	Analyzing
8	Distinguish between strings and string builder classes in C#.	BTL4	Analyzing
9.	Show string builder methods of C#.	BTL3	Applying
10.	What are the high level operations possible on strings with the help of regular expression?	BTL2	Understanding
11	What is generic collection in C#?	BTL1	Remembering
12	Show the various types of generic collection.	BTL3	Applying
13	How to insert an element in the list using Collection?	BTL6	Creating
14	How is memory managed in C#?	BTL6	Creating
15	What are the ways in which unmanaged resources handled in C#?	BTL1	Remembering
16.	Give an example for casting pointer to integer types.	BTL2	Understanding
17	Show the diagram for exception class hierarchy.	BTL3	Applying
18	Give the syntax to handle the exception in C#.	BTL2	Understanding
19.	Write a code to find out the types defined in the Assembly.	BTL1	Remembering
20	Define reflections and its allowed operations.	BTL1	Remembering

21	What do you mean by collection in C#?	BTL2	Understanding
22	List the types of Collections.	BTL1	Remembering
23	Give an example for Generic Collection.	BTL3	Applying
24	Define Non-generic Collection.	BTL1	Remembering
	PART B		
1	i. What do you mean by delegates? Describe in detail about delegates with an example. (7) ii.Describe in detail about multicast delegates.(6)	BTL1	Remembering
2	What is the use of event in C#? Describe in detail about how to publish an event with an example.(13)	BTL1	Remembering
3	Illustrate in detail about i. Anonymous methods.(6) ii. Lambda Expression.(7)	BTL3	Applying
4	Discuss in detail about the following i. Lambda Expression parameter .(6) ii. Variables outside of the lambda expression(7)	BTL2	Understanding
5	Analyze the event Listeners are used in C#. Develop a C# program using event Listeners.(13)	BTL4	Analyzing
6	i. Explain in detail about key methods of String Class.(7) ii .Analyse the use of String Builder class. Explain the methods of string builder class.(6)	BTL4	Analyzing
7	Examine in detail about regular expression with an example and list its unique features(13)	BTL2	Understanding
8	Define generic collections. Discuss in detail about List operations using collection with an example.(13)	BTL1	Remembering
9	Write about working with queues in collection and explain with an example.(13)	BTL1	Remembering
10	Explain in detail about the memory management in C#.(13)	BTL4	Analyzing
11	i. Illustrate in detail about Garbage Collections in C#.(6) ii.Summarize in detail about the pointer usage in C# with an example program.(7)	BTL3	Applying
12	i. How the Exception are handled in C#. (6) ii. Develop a C# program to implement the multiple catch block.(7)	BTL6	Creating
13	Explain in detail about user defined exception with an example program.(13)	BTL5	Evaluating
14	i.Discuss the implementation of reflection with suitable example.(10) ii.List the benefits of using reflection.(3)	BTL2	Understanding
15	Write about Events in C# Programming in detail. (13)	BTL1	Remembering
16	Explain in detail resource allocation, managed heap after a collection and code demonstrates how resources are allocated and managed. (13)	BTL2	Understanding

17	Give the syntax of keywords used to built Exception handling in C# and explain in detail.(13)	BTL3	Applying
PART C			
1	Develop a program to perform the following. Defines a Math Operations class that has a couple of static methods to perform two operations on doubles. Then you use delegates to call up these methods.(15)	BTL6	Creating
2	Explain about event publisher and event listener with a real time scenario.(15)	BTL5	Evaluating
3	Develop a program to implement dictionary generic collection.(15)	BTL6	Creating
4	Explain in detail about custom attributes declaration , naming and construction with example program.(15)	BTL5	Evaluating
5	Explain in detail Regex Class with an example code(15)	BTL5	Evaluating
UNIT III BASIC CLASS LIBRARIES AND DATA MANIPULATION			
Diagnostics -Tasks, Threads and Synchronization – .Net Security – Localization – Manipulating XML- SAX and DOM – Manipulating files and the Registry- Transactions – ADO.NET- Peer-to-Peer Networking – PNRP – Building P2P Applications – Windows Presentation Foundation (WPF).			
PART– A			
1	Create a simple thread using Thread class.	BTL6	Creating
2	Illustrate the priority level setting in the threads.	BTL3	Applying
3	Give the limitation of using thread pool.	BTL2	Understanding
4	List the classes used in C# for synchronization.	BTL1	Remembering
5	What is the method used in C# to know the identity?	BTL1	Remembering
6	Evaluate the importance of code access security.	BTL5	Evaluating
7	Define localization.	BTL1	Remembering
8	What is DOM? Give am example for XML DOM.	BTL2	Understanding
9	Give the main XML reader and writer Classes.	BTL2	Understanding
10	Differentiate SAX and DOM.	BTL4	Analyzing
11	Show the main actors of transaction.	BTL3	Applying
12	What are the different phases of transaction?	BTL1	Remembering
13	Point out the characteristics of transaction.	BTL4	Analyzing
14	List the methods of file system object to manipulate the files in C#.	BTL1	Remembering
15	Show the structure of XML.	BTL3	Applying
16	Summarize the advantages of peer to peer networking.	BTL5	Evaluating
17	What is the Data Adapter Object in ADO.NET?	BTL1	Remembering
18	Develop the code to generate one 2D shape using shape class.	BTL6	Creating

19	What is WPF and Give its advantages?	BTL2	Understanding
20	Point out the classifications of contents in WPF.	BTL4	Analyzing
21	List the conditions that deals with Thread Synchronization Deals.	BTL1	Remembering
22	Give the list of classic problems of Synchronization	BTL3	Applying
23	List the categories to handle Synchronization.	BTL1	Remembering
24	What is the goal of localization?	BTL1	Remembering
PART B			
1	i.Explain in detail about thread creation in C#.(6) ii. How the data passed to the thread? Explain with an example.(7)	BTL5	Evaluating
2	Discuss the following thread issues i. Race condition.(6) ii. Dead lock.(7)	BTL2	Understanding
3	Describe in detail about task handling with the necessary code.(13)	BTL1	Remembering
4	Illustrate the following synchronization technologies i. Mutex.(6) ii. Semaphore.(7)	BTL3	Applying
5	Demonstrate the Signature- security using the EDSA Algorithm for signing.(13)	BTL3	Applying
6	Analyze symmetric key exchange for a secure transfer by using the Diffie Hellman algorithm.(13)	BTL4	Analyzing
7	i. Differentiate localization and globalization.(4) ii. Explain the windows form localization with example.(9)	BTL4	Analyzing
8	Discuss in detail about ADO.NET transaction using simple C# program.(13)	BTL2	Understanding
9	Formulate how to read and write the streamed XML in .NET. (13)	BTL6	Creating
10.	i. Compare DOM with SAX.(6) ii.Explain about reading XML via the SAX approach in C# .NET.(7)	BTL4	Analyzing
11	Write short notes on the following file manipulations. i. Reading to the file.(6) ii. Writing to the file.(7)	BTL1	Remembering
12	Discuss in detail about peer to peer Networking. (13)	BTL2	Understanding
13	Describe in detail about the Peer Name resolution Protocol (PNRP) (13)	BTL1	Remembering
14	i. Describe in detail the different layouts of WPF. (6) ii. Discuss about WPF controls and features. (7)	BTL1	Remembering

15	Describe in detail the WPF Architecture with neat diagram and give its advantages. (13)	BTL1	Remembering
16	Explain in detail how to build PSP applications.	BTL2	Understanding
17	Give the two types of connection architectures with a neat diagram and explain in detail.	BTL3	Applying
	PART C		
1	Create an application for the following scenario. First reads the maximum number of worker and I/O threads and writes this information to the console. Then assign job to the threads by invoking the thread pool. The thread pool receives this request and selects one of the threads from the pool to invoke the method. If the pool is not already running, the pool is created and the first thread is started. If the pool is already running and one thread is free to do the task, the job is forwarded to that thread.(15)	BTL6	Creating
2	How synchronization is achieved in C#? What are the technologies supported by C#? Explain in detail about any two technologies of synchronization with an example.(15)	BTL5	Evaluating
3	What is Role registry? Explain in detail about how the read and write operation performed in registry with suitable examples.(15)	BTL5	Evaluating
4	List the Core elements of WPF. Using WPF design the following. The 2D drawing, geometry, and transformation.(15)	BTL6	Creating
5	Explain how to manipulate files and the registry.	BTL5	Evaluating
	UNIT IV WINDOW BASED APPLICATIONS, WCF AND WWF		
	Window based applications – Core ASP.NET- ASP.NET Web forms -Windows Communication Foundation (WCF)- Introduction to Web Services – .Net Remoting – Windows Workflow Foundation (WWF) – Activities – Workflows		
	PART– A		
1	What is the use of control class in windows form creation?	BTL1	Remembering
2	What is order in which events are raised when more than one event selected?	BTL4	Analyzing
3	Point out the ways in which we can display the data table with in a DataGridView control.	BTL4	Analyzing
4	Demonstrate the usage of dateTime picker.	BTL3	Applying
5	Differentiate websites and web application.	BTL2	Understanding
6	Draw the basic architecture of ASP.NET.	BTL6	Creating
7	List the components of ASP.NET file.	BTL1	Remembering
8	State the ASP.NET server control types.	BTL1	Remembering
9	Illustrate the usage of pushback operation.	BTL3	Applying
10	Give the XML element type Format of web server controls.	BTL2	Understanding
11	Show the components that participate with a WCF communication	BTL3	Applying
12	Define Workflow. How it differ from activity?	BTL2	Understanding

13	Why we use .NET remoting?	BTL5	Evaluating
14	List the key elements of .NET remoting architecture	BTL1	Remembering
15	Define WSDL.	BTL1	Remembering
16	Express the use of REST in WCF.	BTL2	Understanding
17	State contract and its Types in WCF.	BTL1	Remembering
18	Point out the functionality of Invoke method activity.	BTL4	Analyzing
19	Why bookmarks used in Workflow?	BTL5	Evaluating
20	Create the architecture of server side communication in .NET remoting.	BTL6	Creating
21	Give the three major components of a Web Service.	BTL3	Applying
22	What is SOAP?	BTL2	Understanding
23	List the advantages of web service	BTL1	Remembering
24	What is Windows forms application?	BTL1	Remembering
	PART B		
1	Explain in detail about creating windows form application.(13)	BTL4	Analyzing
2	Create simple windows application to select the every record from the table in database and display these records to the user in Datagridview control.(13)	BTL6	Creating
3	Describe in short the following controls i.Button.(5) ii.Checkbox.(5) iii.RadioButton.(3)	BTL1	Remembering
4	How to create a windows forms? Explain various forms events and control with example.(13)	BTL5	Evaluating
5	i. Discuss in detail about ASP.NET architecture and its file processing.(6) ii. Describe about ASP.NET code Model.(7)	BTL1	Remembering
6	i. Illustrate the ASP.NET server controls.(5) ii.Write a code to add web form controls using ASP.NET.(8)	BTL3	Applying
7	i. Describe in detail about WCF.(6) ii. Discuss about the core services used for platform-independent communication.(7)	BTL1	Remembering
8	i.List the different activities of WCF.(3) ii. Describe in detail about any four activities of WCF.(10)	BTL1	Remembering
9	Discuss in detail about workflow and explain the variables and arguments passed in Workflow with an example.(13)	BTL2	Understanding
10	Explain in detail about .NET remoting and the client and server side communication.(13)	BTL4	Analyzing

11	Demonstrate the usage remote objects, clients, and servers using a simple application.(13)	BTL3	Applying
12	Discuss with neat sketch the .NET remoting architecture in detail.(13)	BTL2	Understanding
13	Summarize in detail about web service creation using ASP.NET.(13)	BTL2	Understanding
14	i. Compare ASP and ASP.NET.(6) ii. Explain in detail Data Webserver controls of ASP.NET.(7)	BTL4	Analyzing
15	Explain in detail web form processing in ASP.Net(13)	BTL2	Understanding
16	Write about the various features of web forms and list the controls used in the web form (13)	BTL1	Remembering
17	Show the WCF layered architecture with neat diagram and explain in detail.	BTL3	Applying
	PART C		
1	Create a simple windows application to pass the data between two forms and change the back ground color of the form.(15)	BTL6	Creating
2	Develop a simple registration form for event registration using ASP.NET Web forms.(15)	BTL6	Creating
3	Explain in detail about web services in ASP.NET. Create a simple calculator web service using ASP.NET.(15)	BTL5	Evaluating
4	How do you create a window workflow foundation project? Discuss in detail about with an example.(15)	BTL5	Evaluating
5	Identify the important components of web services and explain in detail	BTL5	Evaluating
	UNIT V .NET FRAMEWORK AND COMPACT FRAMEWORK		
	Assemblies - Shared assemblies - Custom Hosting with CLR Objects – App domains - Core XAML - Bubbling and Tunneling Events- Reading and Writing XAML - .Net Compact Framework - Compact Edition Data Stores – Errors, Testing and Debugging –Optimizing performance – Packaging and Deployment – Networking and Mobile Devices		
	PART A		
1	What are assemblies?	BTL1	Remembering
2	Show the structure of Assembly.	BTL3	Applying
3	Compare private and shared assembly.	BTL5	Evaluating
4	What is the use of application domain?	BTL1	Remembering
5	List the items available in strong name of .NET assembler.	BTL1	Remembering
6	Define XAML.	BTL1	Remembering
7	Give the syntax of get and set accessors.	BTL2	Understanding
8	Why the bubbling and tunneling events used in XAML?	BTL5	Evaluating
9	Compare XML and XAML.	BTL4	Analyzing

10	Point out the advantages of XAML.	BTL4	Analyzing
11	What are the challenges of using the .NET compact framework?	BTL1	Remembering
12	Differentiate Window CE and Window mobile.	BTL2	Understanding
13	Analyze the use of compact edition Data store.	BTL4	Analyzing
14	How the exceptions are handled in .NET compact framework?	BTL6	Creating
15	Illustrate Unit testing and its advantages.	BTL3	Applying
16	Give the unique feature of compact CLR Engine.	BTL2	Understanding
17	How can you code to display “hello World” in XAML?	BTL6	Creating
18	Differentiate between testing and debugging.	BTL2	Understanding
19	What is the method used to start a help topic in your application on smart mobile devices?	BTL1	Remembering
20	Show how .net mobile work.	BTL3	Applying
21	State what is assembly?	BTL1	Remembering
22	List the types of Assembly.	BTL1	Remembering
23	Give the use of System.AppDomain class	BTL2	Understanding
24	Show the three main routing strategies of Routed Events	BTL3	Applying
	PART B		
1	i.Discuss in detail about features of assembly.(8) ii.Describe in detail about different types of assemblies.(5)	BTL1	Remembering
2	Explain in detail about assemblies creation with an example.(13)	BTL5	Evaluating
3	Illustrate the usage of Application domain with an example program.(13)	BTL3	Applying
4	Describe in detail about shared assembly and its advantages.(13)	BTL1	Remembering
5	i.Discuss about the dependency properties of XAML.(6) ii.Develop a code to show a dependency property with an example code.(7)	BTL6	Creating
6	Summarize about bubbling and tunneling events with an suitable application.(13)	BTL2	Understanding
7	Discuss in detail about reading and writing operations of XAML.(13)	BTL2	Understanding
8	Describe in detail about .NET compact framework and its challenges.(13)	BTL1	Remembering
9	Analyze the differences between .NET framework and .NET compact framework.(13)	BTL4	Analyzing
10	Discuss the following using compaction edition data store. i.Creating table .(5) ii.Creating foreign key and indexing.(8)	BTL2	Understanding

11	Illustrate the exception handling of .NET compact framework.(13)	BTL3	Applying
12	Describe about the web exception, socket exception and sqlce exception.(13)	BTL1	Remembering
13	Analyze the .NET compact framework performance statistics.(13)	BTL4	Analyzing
14	i. Explain in detail about .net framework deployment features.(7) ii. Explain the advantages of packaging in .net framework.(6)	BTL4	Analyzing
15	Explain in detail the three main routing strategies of Routed Events(13).	BTL1	Remembering
16	Explain in detail : (i)Debugging, types of errors (8) (ii) Exception handling (5)	BTL2	Understanding
17	Illustrate about compile time errors and run time errors with an example code.	BTL3	Applying
PART C			
1	Explain in detail about core XAML with suitable example .(15)	BTL5	Evaluating
2	Create simple application using the compact edition data store .(15)	BTL6	Evaluating
3	Explain how to develop mobile application using .NET.(15)	BTL5	Creating
4	Develop a simple application using the .NET compact framework. (15)	BTL6	Creating
5	Explain in detail about Optimizing performance with sample code(15)	BTL5	Evaluating

Staff In-charge Verified by HOD