Dr. A.P.J. Abdul Kalam Technical University (AKTU) · B.Tech Theory Examination

Object Oriented System Design with C++

KCS054 · 2021

Time: 3 Hours **Max. Marks: 100**

Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

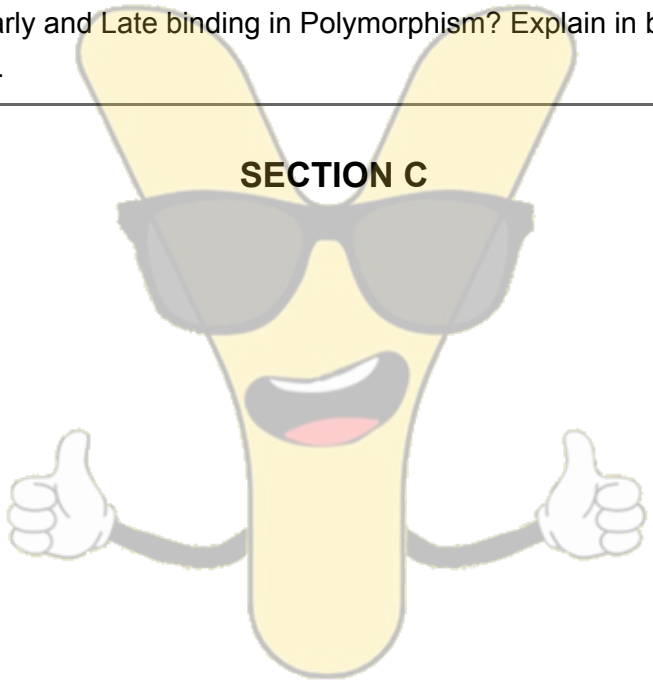
1(a)	Define Object identify with example.	2	U1
1(b)	List the features of Object-oriented paradigms.	2	U1
1(c)	Define and Differentiate Link and Association with example.	2	U2
1(d)	Define and Differentiate Generalization and Inheritance with example.	2	U2
1(e)	How it is different from multiple inheritance and modelled by using nested generalization?	2	U3
1(f)	Define and differentiate Procedural and OOP with example.	2	U3
1(g)	Write a program to demonstrate the all the keywords used in Exception Handling.	2	U4
1(h)	Define friend functions with example.	2	U4
1(i)	Define and differentiate virtual and pure virtual functions with example.	2	U5
1(j)	Define constructor and destructor with example.	2	U5

SECTION B

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2(a)	What do you understand by Object-Oriented Technology? Discuss the pros and cons of object-oriented technology with suitable example.	10	U1
2(b)	What is Data Abstraction? How it is different from encapsulation? Explain with proper example.	10	U2
2(c)	Prepare a DFD for computing the volume and surface area of a cone. Inputs are height and the radius of the base of the cone. Outputs are volume and surface area. Discuss some ways of specifying operations.	10	U3
2(d)	Discuss the term Link and Association by taking suitable example. Also, define multiplicity.	10	U4
2(e)	What is Late Binding & Early Binding? Which technique is used to implement Early and Late binding in Polymorphism? Explain in brief with example.	10	U5

SECTION C



3(a)	What do you understand by a static member function of a class? Discuss their characteristics Give an example where you can justify the use of static member functions.	10	U1
3(b)	Why Object-Oriented Programming (OOP) is so important for software industries or in real life? Explain with example. Discuss the pros and cons of object-oriented technology with suitable example.	10	U4
4(a)	What is use case driven OOA? How is it different from OOD? Explain OOA process with the help of a diagram in the unified approach.	10	U2
4(b)	List the properties of a state chart diagram. Draw a state chart for a coin vending machine present at a railway station.	10	U2
5(a)	Differentiate: i. SA/SD and OMT ii. SA/SD and JSD	10	U3
5(b)	What do we mean by a collaboration diagram? Explain various terms and symbols used in a collaboration diagram. How is polymorphism described using a collaboration diagram? Explain using an example.	10	U2
6(a)	What is operator overloading? Differentiate between overloading of binary operator using friend function and without using friend function.	10	U4
6(b)	Differentiate overloading and overriding. Write a program to overload "+" operator using friend function to concatenate two strings.	10	U4
7(a)	What does the inheritance mean in C++? What is containership? How does it differ from inheritance? Explain. Write a program to demonstrate how ambiguity is avoided in a single inheritance using scope resolution operators.	10	U5
7(b)	What is Pointer in C++? Define const pointers. What is the usage of the pointer in C++? What is the size of a void pointer in C? Demonstrate it.	10	U5

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