

2023

System Programming*Full Marks: 100*

Time: Three hours

*The figures in the margin indicate full marks for the questions.**Answer any five questions.*

1.	a)	Define system programming and state the difference between application and system programs.	10
	b)	Explain the role of the operating system and describe various functions of the OS.	10
2.	a)	Explain the Memory Hierarchy in detail.	10
	b)	Explain the Translation Hierarchy in detail, providing an example for High-level language to machine language translation.	10
3.	a)	Define compiler and explain the various phases of the compiler with an example.	10
	b)	Define Assembler and list out the functions of a two-pass assembler.	10
4.	a)	Write an assembly language program for the expression $X = A/B * C + D$.	10
	b)	Write an assembly language program for the expression $X = A/B * C + D$ using only one register.	10
5.	a)	Write the Data structures obtained after pass I of the Assembler for the assembly language program obtained in 4 a).	10
	b)	Write the variant-I intermediate code of the assembly program obtained in 4 b).	10
6.	a)	Define Linker and explain how it works with an example.	10
	b)	Write a shell program for swapping two numbers using third variable.	10
7.	a)	Define Loader and explain the different functions of the loader.	10
	b)	What is dynamic loading ? Explain different types of loading schemes.	10