K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

	InSem Examination-I Winter 2023		
	Exam Seat No.:		
	Academic Year: 2023-2024	Semester: III	
	Name of Program: B.Tech.	Pattern:2022	
	Name of Course: Embedded Systems	Course Code: ETC222002	
	Max. Marks:30	Duration: 1Hrs	

	Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use. 1. This question paper contains 2 page(s). 2. Answer to each new question is to be started on a new page. 3. Assume suitable data wherever required but justify it. 4. Draw the neat, labelled diagrams, wherever necessary. 5. The last column indicates the Course Outcome the Question/sub-question.	

Question No. 1 Attempt following Question.

a)	Explain the different application and characteristics of embedded systems in detail.	(5)	CO1
	OR		
b)	Explain the different factors that needs to be considered in the selection of memory for Embedded System.	(5)	CO1
c)	Compare OS and RTOS.	(5)	CO1
	OR		
d)	Compare Harvard architecture and Von-Neumann architecture (Include figures).	(5)	CO1
e)	Explain typical process for embedded system development.	(5)	CO1
	OR		
f)	Explain the spiral model. State its merits and demerits.	(5)	CO1

Question No. 2 Attempt following Question.

a)	Draw a pin diagram of 8051 microcontroller and write down feature of it.	(5)	CO2
	OR		
b)	Explain ORG, END and DB directives with example.	(5)	CO2
c)	Explain direct addressing mode and indirect addressing mode with example.	(5)	CO2
	OR		
d)	Write a short note on programming registers of 8051.	(5)	CO2
e)	Write down assembly language code for following operations. i. Addition of two numbers. ii. Multiplication of two numbers.	(5)	CO2
	OR		
f)	Write down assembly language code for block data transfer.	(5)	CO2