K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:III
Class:SY	Program:B.Tech
Branch Code:ETC	Pattern:2022
Name of Course:Embedded Systems	Course Code:ETC222002
Max. Marks:60	Duration:2.30 Hrs.

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 columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

		Marks	CO
Question No. 1			
1a)	Explain Embedded Product Development life cycle (EDLC) in detail.	(6)	CO1
Question No. 2			
2a)	Explain addressing modes of 8051 in detail.	(6)	CO2
Question No. 3			
3a)	Write assembly program to generate square wave of 75% duty cycle using 8051 microcontroller.	(8)	CO3
	OR		
3b)	Explain the fundamental difference between sourcing and sinking current in the context of a microcontroller I/O pin	(8)	CO3
3c)	Write assembly language program for LED blinking and switch interfacing with following conditions. a) when switch is pressed LED turns ON b) when switch is pressed LED turns OFF	(8)	CO3
	OR		
3d)	Explain interrupt structure of 8051 in detail.	(8)	CO3
Question No. 4			
4a)	Compare general purpose OS and Embedded OS	(8)	CO4
	OR		
4b)	Explain various types of RTOS in detail.	(8)	CO4
4c)	Explain Real Time Scheduling Algorithms in detail.	(8)	CO4
	OR		

4d)	Explain issues with shared resources and how these issues are solved?	(8)	CO4

Question No. 5

5a)	Draw an interfacing diagram of stepper motor and show flowchart to rotate the stepper motor in anticlockwise direction for 270^0 rotation.	(8)	CO5

OR

5b)	Explain Data Acquisition System with the help of diagram.	(8)	CO5
5c)	Draw an interfacing diagram of DC motor control with 8051 microcontroller and write an algorithm to interface the DC motor control.	(8)	CO5

OR

5d)	Write a embedded C program to generate triangular waveform using waveform generator.	(8)	CO5

····· End of question paper·····