R20 Regulation *Subject code:3E8DK*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VIII Semester Supplementary Examinations, May 2026

EMBEDDED C

(ECE)

Maximum Marks: 70 Date: 08.05.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	Bloom Tx
1	Define an embedded system.	2M	CO1	BT1
2	Write the interrupt sources present in 8051 microcontroller?	2M	CO1	BT1
3	List out 'C' bit wise operators.	2M	CO2	BT1
4	List out the components with standard libraries developers use when building applications.	2M	CO2	BT1
5	What is file based C class?	2M	CO3	BT1
6	What is the purpose of the MAIN.H file in an embedded C project?	2M	CO3	BT1
7	Differentiate between the loop timeout and the hardware timeout.	2M	CO4	BT1
8	Describe TMOD special function register.	2M	CO4	BT1
9	Define event-driven programming and polling mechanisms in alarm system software, and identify which is more efficient.	2M	CO5	BT1
10	Recall how the system handles false alarms and list ways it ensures robustness in detecting intrusions.	2M	CO5	BT1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
11	How to select the processor based upon its architecture and applications?	10M	CO1	BT3
	OR			
12	Explain the key features of the 8051 microcontroller and describe why it is suitable for embedded system.	10M	CO1	BT3
13	Illustrate and explain a simple C code for counting the number of goats using a hardware simulator.	10M	CO2	BT4
	OR			
14	Describe in detail the concept of counting the number of times a switch is pressed and released, with a structured explanation.	10M	CO2	BT3
15	Describe the step-by-step procedure to convert a monolithic program into an object-oriented C program. Implement the approach with a suitable example.	10M	CO3	BT4

	OR			
16	Explain the functionality of a project header file by implementing a simple code example.	10M	CO3	BT4
17	Analyze the concept of creating hardware delays using Timer 0 and Timer 1. Explain the working mechanism with a simple Embedded C code example.	10M	CO4	BT5
	OR			
18	What are loop timeouts? Examine the procedure for creating loop timeouts and illustrate with an Embedded C code implementation.	10M	CO4	BT5
19	Explain the design and implementation of an Intruder Alarm System. Provide a detailed block diagram explaining the working principle.	10M	CO5	BT4
	OR			
20	Design the software program for creating project header file and also port header file for intruder alarm system by listing all associated files for the project.	10M	CO5	BT5