R20 Regulation *Subject code:3EI00*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Regular/Supplementary Examinations, May 2025

EMBEDDED REAL TIME OPERATING SYSTEMS

(ECE)

Maximum Marks: 70 Date:29.05.2025 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 as sub questions.

Part-A

	All the following questions carry equal marks 10X2M=20 Marks	Marks	CO	Bloom Tx
1	List the specifications of Embedded System.	2M	1	L1
2	What are the basics of operating system.	2M	1	L1
3	Define task scheduling.	2M	2	L1
4	What are types of scheduling algorithms.	2M	2	L1
5	What is Priority inversion.	2M	3	L1
6	Define task communications.	2M	3	L1
7	Define Micro C/OS-II.	2M	4	L1
8	List out OS standards.	2M	4	L1
9	Give the examples and case studies of RTOS controlling modelling RTOS.	2M	5	L1
10	What are case studies of a digital Camera H/S architecture.	2M	5	L1

Part-B

	Answer All the following questions. (5X10M=50Marks)	Marks	CO	Bloom Tx
11	a) Explain the architecture design for embedded system with neat diagram.	5M	1	L2
	b Discuss Hard Vs Soft real time systems with examples.	5M		L2
	OR			
12	a) How to choose an RTOS Explain.	5M	1	L2
	b) Explain about the multiprocessing and multitasking.	2M		L2
13	a) Explain about the FIFO/FCFS scheduling algorithms.	2M	2	L2
	b Explain with flow chart SJF/SRT scheduling algorithms.	5M		L2
	OR			
14	a) Explain about the Round Robin scheduling algorithm.	5M	2	L2
	b Discuss about the priority based scheduling algorithm with examples.	5M		L2
15	a) Explain about the Task communication and shared memory.	5M		L2
	b) What is Remote procedure call and Sockets explain.	5M	3	L2
	OR			
16	a) Explain about the Philosopher's Problem.	5M	3	L2
	b What are the task synchronization techniques are Explain with examples.	5M		L2
17	a) What are the processor trends in embedded systems and embedded OS Trends.	5M	4	L2
	b Explain about Frameworks & Alliances in Embedded systems and OS.	5M		L2

	OR			
18	a) Explain in detail about the development language trends in embedded industry. b) Discuss about Bottlenecks and microOS-II.	5M 5M	4	L2 L2
19	a) Write the design examples and case studies of programming modeling with RTOS. b) Explain the case study of embedded system design for an Automatic chocolate vending machine using MUCOS RTOS.	5M 5M	5	L3 L2
	OR			
20	a) Discuss about the case study of a digital camera hardware and software architecture. b) Explain about the case study of sending application Layer byte streams on a TCP/IP network.	5M 5M	5	L2 L2