R20 Regulation *Subject code: 3O6DA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, November 2025

EMBEDDED SYSTEMS

(CSE(DS))

Maximum Marks: 70 Date: 15.11.2025 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.
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	BTL
1	Define "Time to market".	2M	1	L1
2	What is the quality attribute portability in the embedded system design context?	2M	1	L1
3	What is the role of ASIC in Embedded system design?	2M	2	L1
4	Name the different architectures used for embedded system design.	2M	2	L1
5	What is the role of Reset Circuit in embedded system?	2M	3	L1
6	Write a short note on Embedded OS Trends.	2M	3	L1
7	Define an operating system? Give any two examples.	2M	4	L1
8	Define task scheduling?	2M	4	L1
9	What is Inter Process Communication?	2M	5	L1
10	What is Task Synchronization?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Define an embedded system? Explain the characteristics of Embedded Systems.	10M	1	L2
	OR			
12	Explain the various purpose of embedded systems in detail with illustrative examples?	10M	1	L2
13	a) Explain the different factors that needs to be considered in the selection of memory for embedded systems? b) Explain the difference between I^2C and SPI communication interface?	6M 4M	2	L2
	OR			
14	Explain different communication interfaces in detail.	10M	2	L2
15	Explain about different development boards available for embedded system design.	10M	3	L2
	OR			
16	Discuss the development language trends in embedded system.	10M	3	L2

17	What is process control block (PCB)? Explain the structure of the PCB.	10M	4	L2
	OR			
18	Analyze different types of preemptive scheduling algorithms. State merits and demerits of each.	10M	4	L2
19	What is deadlock and examine the conditions favouring deadlock?	10M	5	L2
	OR			
20	Explain the message passing technique for IPC. What are the merits and demerits of message-based IPC.	10M	5	L2