R20 Regulation *Subject code:3O7GA & 3O7HA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Regular Examinations, November2023

EMBEDDED SYSTEMS DESIGN

(Common to CSE(AI&ML) & CSE(DS))

(Open Elective)

Maximum Marks: 70 Date:09.12.2023 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)		Bloom Tx
1	Write Big Endian and Little Endian.	L1
2	Write difference between Harvard and Von-Nuemann architectures.	L1
3	Write about sensors and actuators?	L1
4	Write the differences between combinational and sequential logic circuits?	L1
5	What is Memory shadowing technique?	L1
6	Write different firmware development languages	L1
7	Write the differences between high level language and low-level language?	L1
8	Define process and threads.	L1
9	Define scheduling.	L1
10	Write different task communications techniques?	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		
11	A. Define embedded system and write the history of embedded system with applications? (5M) B. Explain the purpose of the embedded system with examples. (5M)	L2 L2
	OR	
12	A. Write the characteristics of the embedded system with examples? (5M) B. Explain the types of quality attributes of an embedded system? (5M)	L2 L2
13	A. Write the differences between Microprocessor and Microcontroller? (5M) B. Explain the concept of 'Memory' in embedded system context. (5M)	L2 L2
	OR	
14	A. Explain the importance of other system components in embedded system. (5M) B. What is the role of Sensors and Actuators in embedded system design? (5M)	L2 L2

15	A. Explain: (a) Wi-Fi (b) Zig Bee (5M) B. What is external communication interface and explain with examples and neat diagrams? (5M)	L2 L2
	OR	
16	A. Write about on board communication interfaces? (5M) B. Write at least 10 differences between serial communication and parallel communication? (5M)	L2 L2
17	A. What is the function of Firmware? Explain the Firmware development process for an embedded system? (5M) B. Explain the conversion process of High-level language to Machine code? (5M)	L2 L2
	OR	
18	Explain the conversion process of Assembly language to Machine understandable language? (10M)	L2
19	Define task and explain task scheduling techniques in detail. (10M)	L2
	OR	
20	A. Explain task synchronization. (5M) B. Explain scheduling algorithms. (5M)	L2 L2