R18 Regulation

Subject code: 2E8DG

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Regular/Supplementary Examinations, April 2023

Embedded Systems

(Electronics and Communication Engineering)

Maximum Marks: 70 Date:08.05.2023 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)

1 Mention any four characteristics of embedded system
2 List the applications of embedded system in the area of Health Care
3 Differentiate CISC Vs RISC
4 Explain the method used for *HEX File* creation.
5 List any four IOT protocols.
6 Write a short note on parallel interface.
7 What is RTOS task? Describe the different states of a task.
8 Explain the Real time systems & distributed systems.
9 What are the different ways to protect shared data?
10 How to choose an RTOS.

Part-B

Answer All the following questions. (5X10M=50Marks)

11 A. What is an Embedded System? Explain the purpose of embedded systems? [6M]
B. List any four differences between embedded systems and general purpose computing systems [4M]

OR

12 A. Illustrate the classification of embedded systems based on Complexity and performance? [6M]
B. Discuss any four quality attributes of embedded systems for the non operational mode (off line mode) of the system. [4M]

13 A. Illustrate the concept of instruction pipelining for single stage pipelining? [6M]
B. Summarize the differences between Micro processor and Micro controller? [4M]

OR

14 A. Explain about the system component Real Time Clock (RTC) and Watchdog Timer. [6M]
B. Discuss about the Programmable Logic Devices (PLD). [4M]

15 A. Illustrate the I2C bus interface for onboard communication. [6M]
B. Write a short note on Bluetooth (BT) and Zigbee. [4M]

OR

16 A. With generic block diagram explain the physical design of IOT. [6M]
B. List and explain the main components used in Internet of things (IOT). [4M]

17 A. Construct an example to explain the concept of Task scheduling in RTOS. [6M]
B. What do you understand by term "*realtime*"? How is the concept of real-time different from traditional computing? [4M]

OR

18 A. Write a short note on Multiprocessing and Multitasking techniques used in RTOS. [6M]
B. Compare OS and RTOS. [4M]

19 Explain about Message Queues, Mail box and Pipe. [10M]

OR

20 Discuss about the priority inversion and Deadlock situations. [5M+5M]