



R20 Regulation

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

Subject code: 3E7DC

## B.Tech VII Semester Regular Examinations, November 2023

### EMBEDDED SYSTEM DESIGN

(ECE)

Maximum Marks: 70

Date:08.12.2023 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)

1	List the typical characteristics of an Embedded System.	L1
2	What are the components of Embedded System.	L1
3	What are programmable logic devices? Mention their merits.	L1
4	Compare static RAM and dynamic RAM.	L2
5	What is the purpose of I2C Bus.	L1
6	Specify the use of Optocoupler.	L1
7	Mention the two basic approaches for the design and implementation of embedded firmware.	L2
8	What is board bring-up.	L2
9	What is the need for EDLC?	L1
10	List EDLC approaches.	L1

#### Part-B

Answer All the following questions.

(5X10M=50Marks)

11	Compare the Embedded Systems with General Computing Systems. Add a note on the classification of Embedded System. [10]	L3
OR		
12	Explain the various purposes of Embedded Systems in detail with illustrative examples. [10]	L2
13	Discuss the different types of memories used in Embedded System design with examples. [10]	L3
OR		
14	Describe in detail about the functionality and role of Watch dog Timer in Embedded System. [10]	L2
15	Give a detailed account of RS 232 serial interface with pin configuration. [10]	L2
OR		
16	Write short notes on the following: (a) 7-segment LED display [5] (b) Stepper motor.[5]	L2
17	Discuss the need of an embedded firmware and explain the embedded firmware development languages. [10]	L3

	OR	
18	Write short notes on the following: (a) In System Programming [5] (b) Out of Circuit Programming. [5]	L2
19	Discuss the different phases and objectives of EDLC. [10]	L3
	OR	
20	Explain in detail about Battery Operated Smart Card Reader implemented using the microcontroller 8051. [10]	L3