



**B.Tech VII Semester Regular Examinations, December 2024**

**EMBEDDED SYSTEMS DESIGN**  
*(CSE)*

**Maximum Marks: 70**

Date:04.01.2025

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, d as sub questions.

**Part-A**

All the following questions carry equal marks		(10X2M=20 Marks)	CO	Bloom Tx
1	What is an embedded system?		1	L1
2	What are the applications of embedded systems?		1	L1
3	What is the need of watch dog timer?		2	L1
4	What is the role of reset circuit in embedded systems?		2	L1
5	What is an external interface?		3	L1
6	What are the latest trends used in embedded system design?		3	L1
7	List different types of RTOS? Explain any one		4	L1
8	What are the functions of RTO's?		4	L1
9	Define Task.		5	L1
10	What is the need for device driver?		5	L1

**Part-B**

Answer All the following questions.		(5X10M=50Marks)	CO	Bloom Tx
11	A) What are the Operational Quality Attributes? Explain with examples [5M] B) What is an Embedded system? Give the classification of embedded systems. [5M]		1	L2 L2
OR				
12	A) Explain the purpose of embedded system. [5M] B) Distinguish Embedded Systems and General Purpose Computing Systems. [5M]		1	L2 L2
13	A) Explain in detail about any one Embedded Firmware design approach. [5M] B) Explain the role of Watchdog timer in embedded system [5M]		2	L2 L2
OR				
14	A) What is Application Specific Integrated Circuit? Explain the role of it in Embedded System design? [5M] B) Explain the role of Real Time Clock in embedded system. [5M]		2	L2 L2

15	Explain about any two onboard communication interfaces in detail. [10M]		3	L2
OR				
16	A) Explain RS232 in detail. [5M] B) Explain the Processor Trends in Embedded Systems [5M]		3	L2 L2
17	A) Explain how thread and process are used in an embedded system [5M] B) Explain various Task scheduling algorithms in RTOS. [5M]		4	L2 L2
OR				
18	A) Explain the different multitasking models in operating system context. [5M] B) List the different types of Operating Systems? Explain [5M]		4	L2 L2
19	A) What is Device driver? Explain about device driver programming [5M] B) Explain how to choose an RTOS. [5M]		5	L2 L2
OR				
20	A) Identify the methods of task synchronization and explain any one in details. [5M] B) Discuss Synchronization Issues in Real-Time Systems [5M]		5	L2 L2