**Hall Ticket Number: 18ECD23**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **August, 2021** | **Electronics & Communication Engineering** | | |
| **Sixth Semester** | **Embedded Systems** | | |
| **Time:** Three Hours | | **Maximum:** 50 Marks | |
| *Answer Question No.1 compulsorily.* | | | (1X10 = 10 Marks) |
| *Answer ONE question from each unit.* | | | (4X10=40 Marks) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | Answer all questions | | (1X10=10 Marks) | |
|  | a) | Define feature size. | |  |
|  | b) | **How ISR can used in Operating System?** | |  |
|  | c) | What is pipe lining? | |  |
|  | d) | **Mention what are the essential components of embedded system?** | |  |
|  | e) | **Mention how I/O devices are classified for embedded system?** | |  |
|  | f) | **Define memory map.** | |  |
|  | g) | **Define mutex.** | |  |
|  | h) | **Write the difference between clock driven scheduling and event driven scheduling.** | |  |
|  | i) | Expand GPIO. | |  |
|  | j) | **List semaphore instructions.** | |  |
| **UNIT I** | | | | |
| 2 | a) | Briefly explain about processor technology of Embedded systems. | | 5M |
|  | b) | What are the design challenges of Embedded systems | | 5M |
| **(OR)** | | | | |
| 3 | a) | Explain the concept design technology? | | 5M |
|  | b) | Explain about IC technology in embedded system | | 5M |
| **UNIT II** | | | | |
| 4 |  | Explain about operation modes in ARM family? | | 10M |
| **(OR)** | | | | |
| 5. | a) | Explain ARM cortex pipeline? Write an ALP to perform addition of 2 numbers. | | 5M |
|  | b) | Explain about memory attributes?. | | 5M |
| **UNIT III** | | | | |
| 6. | a) | Explain about MUTEX and message queues? | | 5M |
|  | b) | Explain the Architecture of kernel? | | 5M |
| **(OR)** | | | | |
| 7. | a) | Explain Task and Task scheduler | | 5M |
|  | b) | Explain how Tasks are different from functions and Interrupt Service Routines. | | 5M |
| **UNIT IV** | | | | |
| 8 | a) | Demonstrate basic TIVA C Programming with suitable example. | | 5M |
|  | b) | Discuss about priority inversion problem. | | 5M |
| **(OR)** | | | | |
| 9 | a) | Explain about TIVA C-TM4C123G | | 8M |
|  | b) | What a short note IOT Applications. | | 2M |

****