Register No.: ……………………………. Name: …………………………………………………………..

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SECOND SEMESTER M.TECH DEGREE EXAMINATION (Regular), JULY 2022
VLSI AND EMBEDDED SYSTEMS
(2021 Scheme)

Course Code:	**21VE203**
Course Name:	**Embedded Operating System and RTOS**
Max. Marks:	**60** **Duration: 3 Hours**

PART A
(Answer all questions. Each question carries 3 marks)

1. Draw the general schematic of an embedded systems.
2. Define process and thread in an operating system.
3. Draw and explain Task State diagram of any one operating systems.
4. Binary semaphores may be used for eliminating conflicts while using global variables. How?
5. With neat sketches explain swapping.
6. Explain the concept of virtual memory.
7. With examples, explain the usage of Sockets in VxWorks?
8. With suitable examples, describe Board Support Packages.

PART B
(Answer one full question from each module, each question carries 6 marks)

MODULE I

9. Explain Embedded System Development Process in detail. (6)

OR

10. Define the term SoC? Draw the schematic of any latest SoC available in the market and explain about its communication interfaces. (6)

MODULE II

11. List the functions used to create processes in an operating system? Explain. (6)

OR

12. Differentiate Monolithic Kernel and Micro Kernel. (6)

MODULE III

13. Explain the methods to eliminate shared data problem. (6)

OR

14. Categorize various Scheduling algorithms under preemptive and non-preemptive type and explain each. (6)

MODULE IV

15. Define message queues. Explain the various message queue functions used in RTOS.   (6)

OR

16. Enumerate the role of timer functions and event functions in inter process communication.   (6)

MODULE V

17. With a neat schematic explain how segmentation is done in an operating System?   (6)

OR

18.
   a) List the functions of memory manager.   (2)
   b) With neat sketches explain paging.   (4)

MODULE VI

19. Implement a pipe device in VxWorks.   (6)

OR

20.
   a) Explain about POSIX? Give examples of standards under POSIX.   (3)
   b) List and explain the operating system performance guidelines?   (3)

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