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Question Paper Code	12815
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M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

First Semester

M.E - Embedded Systems Technologies

20PESPC104 - SOFTWARE FOR EMBEDDED SYSTEMS

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

	Marks	K- Level	CO
1. State the need for Assembler Directives.	2	K1	CO1
2. Write the syntax for Switch Statement.	2	K1	CO1
3. What are the advantages of Valgrind over other profiling tools?	2	K1	CO2
4. How is C file compiled in Linux environment?	2	K1	CO2
5. Specify the contents of a header file.	2	K1	CO3
6. Brief the purpose of using typedef statements in embedded C language.	2	K2	CO3
7. Identify the nature of time triggered architecture in the operating system.	2	K1	CO4
8. List the essential requirements of Embedded OS.	2	K2	CO4
9. Give the syntax for function CALL with and without arguments.	2	K2	CO6
10. What are local variables and global variables in Python?	2	K2	CO6

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Explain any three decision control statements with suitable programming examples.	13	K2	CO1
OR			
b) Give short notes on the concepts of			
i) Bit Fields or packed Structures	7	K2	CO1
ii) Bit Operators.	6	K2	CO1
12. a) Elaborate on CPU profiling methods and Linux tools used for CPU profiling.	13	K2	CO2
OR			
b) Discuss over the methods used in Debugging and Optimization in Embedded C Coding.	13	K2	CO2

13. a) Write a simple program and explain about the testing of hardware based timeout mechanisms. 13 K2 CO3

OR

- b) Illustrate the need for header files and ports with suitable examples. 13 K2 CO3

14. a) Write a program for project displaying elapsed time over an RS232 link. 13 K2 CO4

OR

- b) Illustrate the working of an Intruder alarm system using necessary embedded concepts. 13 K2 CO4

15. a) i) Write a python program to find maximum number in an array. 7 K2 CO6
ii) Explain about few conditional statements used in python. 6 K2 CO6

OR

- b) Explain Recursive function. How does it work? Illustrate with an example. 13 K2 CO6

PART - C (1 × 15 = 15 Marks)

16. a) Discuss how loop timeouts and hardware timeouts are created in embedded system environment with suitable examples. 15 K2 CO5

OR

- b) Elaborate how an embedded serial communication system is established for scheduling of data transmission. 15 K2 CO5