C

Reg. No. :

Question Paper Code: 99453

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2022

Open elective

Civil Engineering

19UEC953– EMBEDDED SYSTEMS AND PROGRAMMING

(Common to CSE, EEE, Mechanical, IT, Chemical, Agriculture and Biomedical Engineering)

(Regulations 2019)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (5x 1 = 5 Marks)

1. Which of the following is not a data transfer Instruction?   CO1- U

    (a) MOV   (b) PUSH   (c) POP   (d) DAS

2. Integrate the concurrent development of both the hardware and the   CO1- U
    software using the methodology called-------------

    (a) Intellectual property   (b) Co-Design   (c) Prototyping   (d) Internet of Things

3. Effective approach for determining the necessary stimuli for both   CO1- U
    test and troubleshooting is based on -------

    (a) path sensitizing   (b) path synthesizing   (c) debugging   (d) testing

4. The ___ tracks the number of times a semaphore has been acquired   CO4- U
    or released by maintaining a token count.

    (a) single task operating syst   (b) hardware   (c) Kernel   (d) software

5. The _____data type permits one to form a heterogeneous collection   CO6- U
    of variables that can be grouped under a single name and treated as a
    single object.

    (a) structure   (b) pointer   (c) function   (d) operators

PART – B (5 x 3= 15 Marks)

6. Describe Arithmetic and Logical operation of an embedded program?   CO1-U

7. Define spiral model?   CO2- U

8. What is a smoke test? CO1- U

9. What is a real-time operating system? CO4- U

10. Explain About Global Scope And Global Variables? CO5- U

PART – C (5 x 16= 80Marks)

11. (a) What is Instruction Types Enhanced to Include Address Mode Information? CO1- U (16)

Or

(b) Illustrates how representative operations from the ISA level can be expressed using RTL. CO1- U (16)

12. (a) Illustrate with diagrams the system design methods using water life cycle model and v- life cycle model? CO1- App (16)

Or

(b) Illustrate with diagrams the system design methods using Spiral life-cycle model and Rapid prototyping life-cycle model? CO1- App (16)

13. (a) Discuss in detail about the strategy for applying debugging and testing CO1- U (16)

Or

(b) With necessary illustrations explain the following: CO1- U (16)
(a) Black box testing strategy
(b) White box testing strategy
(c) Gray box testing strategy

14. (a) Identify and explain the core responsibilities of a real-time operating system. Briefly describe the operating system architecture CO1- U (16)

Or

(b) What is a task control block? What are some of the major components of a task control block? CO1- U (16)

15. (a) Explain briefly about bitwise operator? CO1- U (16)

Or

(b) Identify and describe each of the steps involved in a function call? CO1- U (16)