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Question Paper Code: 99453

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

Open elective

Civil Engineering

19UEC953– Embedded System and programming

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

(Regulation 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5x 1 = 5 Marks)

1. The memory address reflecting the current top of the stack is remembered and modified after each addition or removal. Such an address is called _____. CO1- U
(a) Program Counter (b) Return address (c) Stack pointer (d) Indexed mode
2. Integrate the concurrent development of both the hardware and the software using the methodology called----- CO1- U
(a) Intellectual property (b) Co-Design (c) Prototyping (d) Internet of Things
3. Effective approach for determining the necessary stimuli for both test and troubleshooting is based on ----- CO1- U
(a) path sensitizing (b) path synthesizing (c) debugging (d) testing
4. _____ is the basic building block of software written under an RTOS. CO4- U
(a) Pointer (b) Task (c) counter (d) state
5. Which design can be used to reduce the energy consumption of the embedded system? CO5- U
(a) simulator (b) Compiler (c) emulator (d) debugger

PART – B (5 x 3= 15 Marks)

6. Express the following decimal numbers in the bases indicated. Decimal: 1100 CO2-App
(a) Binary
(b) Octal
(c) Hexadecimal

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|-------------------------------------------------------------------------------------------|----------|
| 7. Define spiral model? | CO2- U |
| 8. Define Scan Design Testing? | CO1- U |
| 9. What is a real-time operating system? | CO4- U |
| 10. What is the difference between enabling/disabling and masking/unmasking an interrupt? | CO6- Ana |

PART – C (5 x 16= 80Marks)

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| 11. (a) What are the addressing modes? Illustrate the following sequence of instructions and identify each addressing modes?
(i) MOVE OPR1, #BH
(ii) MOVE R2, *R3
(iii) MOVE *OPR1, *OPR0 | CO2- App | (16) |
| Or | | |
| (b) What is meant by the expression RTL? How does the RTL view of a microprocessor is applied in Embedded system? | CO2- U | (16) |
| 12. (a) Describe the steps that comprise the Co-Design life-cycle model. | CO1- U | (16) |
| Or | | |
| (b) With the neat block diagram, describe about Traditional Embedded Systems Development. | CO1- U | (16) |
| 13. (a) Discuss in detail about the strategy for applying module debug and test. | CO1- U | (16) |
| Or | | |
| (b) Describe briefly about Path Sensitizing. | CO1- U | (16) |
| 14. (a) Discuss in detail about Priority Schedule. | CO1- U | (16) |
| Or | | |
| (b) With a neat block diagram describe about operating system architecture. | 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) |