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B.E. (Information Technology) Eighth Semester (C.B.S.)

Elective-III : Embedded Systems

P. Pages : 2 **NRT/KS/19/3702**

Time : Three Hours * 0 8 1 5 * Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Assume suitable data whenever necessary.
9. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What are the characteristics and advantages of embedded systems? **7**

b) Differentiate between Embedded system and General computing system. **6**

OR

2. a) Explain the skills required for an embedded system. **7**

b) Describe the embedded software development process. **6**

3. a) Describe the function of embedded software development tools with their applications. **8**

b) List and explain functions of cross compilers. **5**

OR

4. a) What are different design goals? Explain the need of Co-design. **8**

b) Write short note on in circuit Emulators. **5**

5. a) Explain the interrupt routines handled in RTOS. **7**

b) Draw and explain RTOS kernel architecture. **7**

OR

6. Write short note on **any three.** **14**

i) RTOS Task scheduling Models.

ii) Semaphore.

iii) Memory management.

iv) ISR.

7. a) Explain in brief Network Embedded system. **7**

b) Differentiate between. **6**
i) UART and USART. ii) Serial and parallel communication.

OR

8. Discuss and explain the various types and applications of wireless devices. **13**

9. a) Explain the embedded programming in C++. **7**

b) Describe preprocessor directives used in Assembly language programming. **7**

OR

10. a) What are the advantages and disadvantages of object oriented programming? **7**

b) Write short note on Embedded programming in Java. **7**

11. a) Draw and explain architecture of 8051 microcontroller in detail. **7**

b) Write in detail the addressing modes of 8051 microcontroller. **6**

OR

12. Write short note on **any two.** **13**

i) Wireless communication protocol.

ii) I/O ports.

iii) Routing interfaces with as.

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The secret of getting ahead is getting started.

~ Mark Twain