

Con. 3893-11.

(REVISED COURSE)

RK-4632

(3 Hours)

[Total Marks : 100

**N.B. :** (1) Question No. 1 is **compulsory**.(2) Attempt any **four** from the remaining **six** questions.

1. (a) Suggest various techniques used for inter process communication in an embedded system with relevant examples. Also, explain strategies used for synchronization between processes. 15
- (b) With the help of a neat diagram, explain the different states a task can be in and the transitions between them. 5
2. (a) Explain the various operating modes of the ARMY processor. 10
- (b) What is the Shard Data Problem ? Explain various techniques to overcome it. (With relevant examples). 10
3. (a) Explain the interface of Alphanumeric LCD with any microcontroller of your choice. (Draw neat diagram) 7
- (b) Write a detailed note on the CAN Bus explaining its features and protocol. 7
- (c) Differentiate between CISC and RISC processors. 6
4. (a) What is interrupt latency in Embedded systems ? Suggest methods to reduce latency. 10
- (b) Explain what is the Linear sequential model in Embedded software development. 10
5. (a) Explain the Register set of the MSP430 RISC controller (working Registers, SFRs, status Register etc.) 10
- (b) Write a detailed note on the THUMB mode of operation of the ARMY processor. 10
6. (a) Explain Bounded and unbounded priority Inversion problem. Suggest methods to overcome / minimise it. 10
- (b) Explain the various program modelling techniques used in Embedded system design. 10
7. Write short notes on :— 20
  - (a) Watching Timer
  - (b) Serial Peripheral Interface (SPI)
  - (c) Different types of memories in Embedded systems
  - (d) Digital Signal Controllers (DSCs).