

Total No. of Questions : 12]

SEAT No. :

P831

[4659]-90

[Total No. of Pages : 2

B.E. (E&TC)

**b-EMBEDDED SYSTEMS AND RTOS
(2008 Pattern)(Elective-I)(Semester-I)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answer three questions from each section.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Assume suitable data, if necessary.*

SECTION-I

- Q1)** a) What is the time to market design metrics? Draw and explain simplified revenue model and calculate the losses if product is delayed by 12 weeks. Assume product life to be 52 weeks. **[10]**
- b) Explain features of Android operating system and its two applications. **[8]**

OR

- Q2)** a) Mention currently available processors from various manufacturers and compare them for embedded applications. **[10]**
- b) Write short Notes on: **[8]**
- i) GPRS
 - ii) CAN Protocol

- Q3)** a) Explain the pipeline concept and various characteristics of pipeline. **[8]**
- b) Interface LPC 2148 to seven segment display and also write "C" code. **[8]**

OR

- Q4)** a) With the help of different applications, Explain requirement of memory and its selection criteria. **[8]**
- b) Compare ARM 7, ARM 9 and ARM 11 family members. **[8]**

- Q5)** a) Explain the following Task synchronization Issues **[10]**
- i) Racing
 - ii) Dead lock
 - iii) Priority Inversion
- b) Explain mutual exclusion through semaphore. **[6]**

OR

P.T.O.

- Q6)** a) Compare multiprocessing and multitasking. Explain different techniques of multitasking. [8]
- b) What do you mean by task communication and Explain various IPC techniques. [8]

SECTION -II

- Q7)** a) State and explain the various development tools required for ARM applications. [10]
- b) Explain tool utilities. [6]
- i) Minicomp
- ii) MTD

OR

- Q8)** a) Explain linux kernel architecture and configuration. [10]
- b) Write short notes on. [6]
- i) Ethernet
- ii) TCP/ IP
- by considering embedded linux.

- Q9)** a) Explain difference between waterfall and spiral model of software development and its applications. [8]
- b) Compare various commercial RTOS which is applicable for embedded applications. [8]

OR

- Q10)**a) Write the features of “WIN CE” operating system used in smart mobile phones. [8]
- b) Explain features of commercial RTOS “ Vxworks”. [8]

- Q11)**a) Explain hardware and software requirement for the implementation of ATM system. [10]
- b) Draw block diagram of digital camera and explain it. [8]

OR

- Q12)**a) Explain memory requirements, Input /Output requirements and processors requirements for the engine control in automobile. [10]
- b) Explain different RTOS services used in points of sales terminals. [8]

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