Hall Ticket No | | | | | | | | | | | Question Paper Code: BESB16

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Regular) - May, 2019

Regulation: IARE–R18

MICRO CONTROLLERS FOR EMBEDDED SYSTEM DESIGN

Time: 3 Hours **(ES)** **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) Discuss the different issues to be considered in designing an Embedded System in RTOS environment. **[7M]**
   (b) Define embedded systems and how they differs from desktop systems. **[7M]**
2. (a) Discuss the different types of memories used in embedded systems. **[7M]**
   (b) Select the processors/controllers and memories for the design of smart card reader and justify your selection. **[7M]**

UNIT – II

3. (a) Explain the architecture of 8051 with a neat sketch and with help of an example discuss about physical address generation in 8051. **[7M]**
   (b) How many counters and timers are used in 8051 microcontroller and list the specifications of the counters and timers. **[7M]**
4. (a) What is need timer in 8051? Explain the Timer/Counter working operation in 8051. **[7M]**
   (b) How to program timers as a counter and discuss in detail about steps followed for value to be loaded in the timer register for the 1ms delay. **[7M]**

UNIT – III

5. (a) Explain the difference between ARM instruction set Thumb instruction set in detail. **[7M]**
   (b) Differentiate RISC vs CISC processor architecture. **[7M]**
6. (a) Draw and explain the programmable system on chip architecture with a neat sketch. **[7M]**
   (b) List various families of PSOC microcontroller. Explain the programming of PSOC with a suitable example. **[7M]**

UNIT – IV

7. (a) Describe the context switching procedure and its importance in scheduling mechanism. **[7M]**

   (b) Describe "data transmission", "data reception" scenarios of serial driver along with its neat flowchart representation. **[7M]**

8. (a) Compare the features of the following device drivers i)Serial driver ii)Ethernet driver iii)USB driver iv)I2C driver **[7M]**

   (b) Define interrupt latency. Explain about interrupt latency period and dead line for an interrupt in detail. **[7M]**

UNIT – V

9. (a) What is meant by ethernet? Explain different types ethernet protocols in detail. **[7M]**

   (b) Discuss about I2C bus communication with its devices. How does CAN differ from I2C? **[7M]**

10. (a) List various network protocols. Discuss in detail about EBI and it's significance. **[7M]**

    (b) What are the uses of CAN protocol. Discuss about CAN bus communication with its devices. **[7M]**

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