[5254]-81
B.E. (Electronics)
ELECTRONICS SYSTEM DESIGN
(2008 Pattern)

Time : 3 Hours]   *[Max. Marks : 100*

Instructions to the candidates:

    1)   *Answer three questions from section I and three question from section II.*

    2)   *Answers to the two sections should be written in separate books.*

    3)   *Figures to the right indicate full marks.*

    4)   *Neat diagrams must be drawn wherever necessary.*

    5)   *Use of pocket calculator is allowed.*

    6)   *Assume suitable data, if necessary.*

SECTION - I

Q1) a)   Explain Industrial product design with the help of case study in detail.**[8]**

    b)   State the criteria for selection of frequency bands requirements of Voice and multimedia application.   **[6]**

    c)   Explain the bath tube curve indicating all its regions.   **[4]**

OR

Q2) a)   Explain the Pilot Production. Why it is necessary in Electronics Product design.   **[8]**

    b)   Define and explain the following terms in mathematical way.   **[6]**

        i)   MTBF

        ii)   MTTF

        iii)   Failure Rate

    c)   Explain different reliable soldering practices.   **[4]**

P.T.O

Q3) a) Explain error budget analysis with one example of an electronic product.

[8]

b) Explain different performance factor of DAC. **[8]**

OR

Q4) a) Explain Instrumentation amplifier with proper circuit diagram. Explain its need in analog signal conditioning. **[8]**

b) Explain following ADC characteristic: **[8]**

 i) Full-scale-input-range

 ii) Number of bits

 iii) Analog and /or digital gain capability

 iv) Power consumption

Q5) a) Determine the hardware design considerations for a load based weighing machine to display weight, rate and price information on digital display.

[8]

b) What are the factors affecting on selection of buses and protocols in high speed electronic product. **[8]**

OR

Q6) a) Explain working principle of analog resistive touch screen. Interface 4 wire touch screen with any one microcontroller. **[8]**

b) Explain the selection of microcontroller for particular DAS Application. Justify selection based on number of IOs. **[8]**

SECTION - II

Q7) a) Write note on-   **[10]**

     i)   Compiler

     ii)   Emulator

     iii) Simulator

     iv) Assembler

  b) With the help of suitable example explain in detail how waterfall model is used for software development.   **[8]**

OR

Q8) a) What are the different factors affecting on the choice between Assembly & High Level Language?   **[10]**

  b) Write short notes on-   **[8]**

     i)   Structured Programming

     ii)   Real time software

Q9) a) What are the different PCB Design issues of analog and mixed signal Circuits. Explain in details.   **[8]**

  b) Define crosstalk? What should be the remedy to minimize crosstalk?**[8]**

OR

Q10)a) Explain the difference between PCB design practices of low speed and high speed digital circuits.   **[8]**

  b) Explain various mechanisms which affect on signal integrity in high speed digital circuits.   **[8]**

*Q11)*a) What are the features & limitations of analog CRO, DSO, Logic Analyzer & Mixed signal Oscilloscopes in finding hardware /software faults?**[10]**

b) Why environmental testing is necessary? How it is carried out? **[6]**

OR

*Q12)*a) Explain following equipment for circuit testing: **[10]**

i) Digital storage Oscilloscope

ii) Mixed signal Oscilloscope

b) What is need of DC analysis? Comment on the stability. **[6]**

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