

Total No. of Questions : 12]

SEAT No. :

P1754

[4859]-112

[Total No. of Pages : 3

B.E. (Electronics)
ELECTRONICS SYSTEM DESIGN
(2008 Course) (Semester - I)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer three questions from section I and three questions 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) Discuss in detail the different stages of an electronic product development. Explain the implications of skipping a particular stage in development. **[10]**
- b) Explain the pilot production batch. Why it is important in electronic product design. **[8]**

OR

- Q2)** a) A communication system is to be designed to work at RF range. Discuss the considerations in design as far as reliability of the system is concerned. **[10]**
- b) Define and explain the following terms in mathematical way. **[8]**
- i) MTBF
 - ii) MTTF
 - iii) Failure Rate
 - iv) Reliability

P.T.O.

- Q3)** a) Explain Instrumentation amplifier with proper circuit diagram. Explain its need in analog signal conditioning. [8]
- b) Explain any one application of data acquisition system using MAX 11046 which consist high performance, multichannel simultaneous sampling ADC's. [8]

OR

- Q4)** a) List different ADC's specifications and write their importance in design point of view. [8]
- b) Explain error budget analysis with one example of an electronic product. [8]
- 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) Design and explain four channel temperature scanner using AD7817 with any microcontroller. [8]

OR

- Q6)** a) What are the factors affecting on selection of buses and protocols in high speed electronic product. [8]
- b) Draw the typical wiring diagram of each interface RS-485, RS-422, RS-432 and I2C. Also state that how many devices can interface with these buses. [8]

SECTION - II

- Q7)** a) Explain different phases of software design. List the common bugs and how to overcome these bugs? [10]
- b) With the help of suitable example explain in detail how waterfall model is used for software development. [8]

OR

- Q8)** Write short notes on: [18]
- a) Structured Programming.
- b) Real time software.
- c) Steps in programming steps in assembly code on PC.
- d) Choice between assembly and high level language.

- Q9)** a) What are the different PCB Design issues for high speed integrated circuits. Explain in detail. [8]
b) Write a note on shielding and guarding. [8]

OR

- Q10)** a) Explain different termination schemes for avoiding reflections in high speed PCB design. [8]
b) Find the characteristic impedance of Strip line geometry when the PCB laminate thickness is 1.6 mm and relative permittivity is 4.2. The width of embedded track is 1.2mm and thickness 35 micron. [8]

- Q11)** a) Explain electromagnetic compatibility? Why it is necessary? [8]
b) Why environmental testing is necessary? How it is carried out? [8]

OR

- Q12)** a) Explain how debugging of electronics circuit is carried out by logic analyzer. [8]
b) Explain following equipment for circuit testing: [8]
i) Digital storage oscilloscope.
ii) Mixed signal oscilloscope.

