

II B.Tech II Semester Supplementary Examinations, Apr/May 2006
BIO-TRANSDUCERS & APPLICATIONS
(Bio-Medical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Briefly explain the factors that will influence the design of a transducer.
(b) What is amplitude and phase distortion and explain how they will influence the signal. [8+8]
2. (a) Explain the principle and measurement of temperature using a thermocouple.
(b) What are the medical applications of thermistors. Explain in detail. [8+8]
3. (a) Write note on chemical thermometry. [8]
(b) Explain the terms:
 - i. Radiation thermometry.
 - ii. Clinical thermometry[4+4]
4. (a) Explain the principle of a strain gauge.
(b) Derive the gauge factor of a strain gauge. [8+8]
5. (a) Explain the differentiation and integration techniques that are used to measure distance related parameters
(b) Explain the operation of piezoelectric transducers. Mention its applications [8+8]
6. (a) With a neat block diagram explain the double cuff automatic pressure-measuring instrument.
(b) Explain a suitable method for measurement of pressure in capillaries. [8+8]
7. What is the use of dilution technique in medical diagnosis? Describe thermo dilution method. [16]
8. What are the features of a differential amplifier used in biomedical instrumentation? How the linearity and the frequency response of the amplifier are improved? [8+4+4]
