

Printed Pages – 3

IC – 601

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 3045

Roll No.

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B.Tech

SIXTH SEMESTER EXAMINATION, 2005-2006

TRANSducers AND DISPLAY SYSTEMS

Time : 3 Hours

Total Marks : 100

- Note :**
- (i) Attempt **ALL** questions.
 - (ii) All questions carry equal marks.
 - (iii) In case of numerical problems assume data wherever not provided.
 - (iv) Be precise in your answer.

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1. Attempt **any four** parts of the following : (5x4=20)
- (a) What are different classifications of transducers. Explain mechanical hysteresis and creep.
 - (b) With the help of diagrams, explain the effect of finite wire diameter on the resolution of a wire wound potentiometric transducer.
 - (c) Explain in detail, integrated transducers using semi conductor strain gauges.
 - (d) Describe eddy current type inductive transducer.
 - (e) Discuss frequency response of piezoelectric accelerometer.
 - (f) Give a detailed discussion about reference junction compensation in thermostatically controlled device.

2. Attempt *any four* parts of the following : (5×4=20)

- (a) Explain linear digital encoders.
- (b) Explain, how by using a differential arrangement, a capacitive transducer having two plates can be made to have a linear response.
- (c) Draw and describe voltage-current and current-time characteristics of thermistors.
- (d) How resolvers work ? Explain.
- (e) (i) Prove that the time constant is 20 ms in order to keep the undershoot to a value within 5%. A pulse is applied to a piezoelectric transducer for 1ms.
(ii) Mention two disadvantages of resistive digital encoders.
- (f) Derive and plot frequency response of capacitive transducers.

3. Attempt *any two* parts of the following : (10×2=20)

- (a) What are flat CRTs ? Compare their performance with other type of CRTs.
- (b) Mention typical specifications of incandescent displays. How these are different from electroluminiscent displays ?
- (c) Explain in detail electrophoretic image displays. Mention their specifications, advantages and disadvantages.

4. Attempt *any two* parts of the following : (10x2=20)
- (a) Do comparison between analog display and digital display for resolution, range error, display, loading and precision.
 - (b) Explain liquid vapour displays in detail.
 - (c) Explain seven segment systems. Mention their applications, relative merits and demerits.
5. Attempt *any two* parts of the following : (10x2=20)
- (a) What is an X-Y recorder ? How it is different from X-t and Y-t recorders. Mention its applications.
 - (b) Explain the different methods used for digital tape recording. Explain its advantages and disadvantages.
 - (c) What are servo recorders ? Mention their specifications, applications and relative merits.

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