

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – WINTER 2013****Subject Code: 173206****Date: 03-12-2013****Subject Name: Audio and Video Engineering****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Which type of Crystalline material is suitable for Crystal microphone? Why? Explain the working of the Crystal Microphone with the help of neat sketch. List its characteristics and Applications. **07**
- (b)** Draw the block diagram of Monochrome Television Receiver and write functions of each block. **07**
- Q.2 (a)** Define the following terms: **07**
- [1] Sensitivity
 - [2] Luminance
 - [3] Ghost interference
 - [4] Resolution
 - [5] Pitch
 - [6] Pedestal Height
 - [7] Hue
- (b)** Explain how the luminance and color difference signals are developed from camera outputs. Why is it necessary to set $Y=0.3R+0.59G+0.11B$? **07**
- OR**
- (b)** Draw and explain the block diagram of VHF Tuner. **07**
- Q.3 (a)** What is Scanning? List types of scanning. What do you understand by Interlaced scanning? Show that it reduces flicker and conserve bandwidth. **07**
- (b)** Comparisons between Cone type and Horn type Loudspeaker. **07**
- OR**
- Q.3 (a)** Justify the following : **07**
- [1] A rectangular frame with width to height ratio equal to $4/3$ is preferred for television transmission and reception.
 - [2] The G-Y color difference signal is not used for transmission.
- (b)** Write a short note on Electrostatic microphone. **07**
- Q.4 (a)** Explain the importance of the following terms for PA System. **07**
- [1] Acoustic feedback
 - [2] Ambient noise
 - [3] Reverberation
 - [4] RF pick up
 - [5] Phase delay
 - [6] Matching
 - [7] A.C.hum
- (b)** What is Positive and Negative Modulation? What are the advantages of Negative Modulation? **07**
- OR**
- Q.4 (a)** What is the need of PA System? Draw and explain the block diagram of Public Address system. **07**

- (b) What is AGC? Draw the block diagram of AGC system and explain its working. 07
- Q.5 (a) Explain the necessity of Cross-over networks. Draw a basic cross over network circuit and explain its objective with the help of characteristic curves. Why electrolytic capacitors cannot be used in cross -over networks. 07
- (b) Explain the Characteristics of the Loudspeaker. 07
- OR**
- Q.5 (a) Explain the principle of Magnetic recording and Reproduction with the help of neat sketches. 07
- (b) Design a Voltage amplifier with specification $V_{cc}=9V$, $R_c=3K\Omega$, $R_E=1k\Omega$. Find the values of R_1 and R_2 if stability factor is 10, current flowing through $R_c=1mA$. 07
