Seat No.: _____ Enrolment No._____

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, Rc=3KΩ, R_E=1kΩ.Find the values of R_1 and R_2 if stability factor is 10,current flowing through R_c=1mA.	**07**

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