17316

13141

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

Marks

1. a) Attempt any SIX of the following: **12**

i) List four selection criteria of microphones.

ii) Define Bass and Treble.

iii) Define:

1) F.M.

2) M.I.

iv) List advantages of C.D.

v) List any four specifications of compact disc.

vi) List four parameters of sound.

vii) Write significance of parametric and graphic equilizer.

viii) State different characteristics of audio amplifier.

Marks

b) Attempt any TWO of the following: **8**

i) Derive the mathematical expression for amplitude modulated wave.

ii) Draw and explain in brief block diagram of FM transmitter.

iii) State different methods of optical recording of sound on a film and explain any one of them.

2. Attempt any FOUR of the following: **16**

a) Draw the construction of horn type loudspeaker and give its working principle.

b) Draw and describe optical recording of sound on C.D.

c) Draw and explain block diagram of P.A. system.

d) State the reasons due to which noise is reduced in Dolby system as compared to other audio system.

e) Draw the block diagram of AM transmitter and state function of each block.

f) Differentiate FM from AM (Four points).

3. Attempt any FOUR of the following: **16**

a) Calculate modulation index of AM signal. If V_{max} = 20mv, V_{min} = 15mv.

b) Draw the time and frequency domain spectrum of AM.

c) Draw the circuit diagram of reactance modulation method to generate FM and state its principle of working.

d) A 500 watt carrier is modulated to depth of 80%. Calculate the total power in modulated wave for amplitude modulation.

e) Explain playback process of C.D.

f) Define phase modulation and its modulation index.

Marks

4. Attempt any FOUR of the following: **16**

a) Draw and explain block diagram of Armstrong freq. modulator system.

b) Draw block diagram of communication system and write its operation in brief.

c) Explain PA system installation for an auditorium.

d) Draw and explain ribbon type microphone.

e) Draw the block diagram of HI-FI System and state function of each block.

f) What is meant by detection in optical recording ? Describe its operation.

5. Attempt any FOUR of the following: **16**

a) Differentiate between Direct and Indirect methods of frequency modulation.

b) Define modulation index of AM signal. Draw AM waveform.

c) Explain any two parameters of sound.

d) Compare audio and power amplifier (Four points).

e) Explain concept of reverberation and neccesity.

f) Explain generation of DSBSC AM signal using diode balance modulator.

Marks

6. Attempt any <u>FOUR</u> of the following: **16**

a) Compare woofer, tweeter and squawker.

b) Draw the circuit diagram of stereo control, balance control, loudness control and master gain control.

c) Explain need and use of P.A. system.

d) What are the causes affecting fidelity ? Give their remedies.

e) Compare monophony and stereo phony amplifier (Any four points).

f) Draw and explain freq. spectrum of FM signal.

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