17316

11718

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

Instructions : *(1)* ***All*** *questions are* ***compulsory****.*
(2) Answer ***each*** *next main question on a* ***new*** *page.*
(3) Illustrate your answers with neat sketches ***wherever*** *necessary.*
(4) Figures to the ***right*** *indicate* ***full*** *marks.*
(5) Assume suitable data, if ***necessary****.*
(6) Use of Non-programmable Electronic Pocket Calculator is ***permissible****.*
(7) Mobile Phone, Pager and any other Electronic Communication devices are ***not permissible*** *in Examination Hall.*

Marks

1. A) Attempt **any six.** **12**

a) Define the term Reverberation.
b) Define pitch and overtone.
c) Draw the neat circuit diagram showing constructional details of ribbon microphone.
d) State the characteristics of audio amplifier (any two).
e) What is the difference between parametric and graphic equalizer ? (any two).
f) State the principle of magnetic recording.
g) Draw the frequency spectrum of the FW wave.
h) What is the Bandwidth required for FM signal in which modulating frequency is 2 kHz and the maximum deviation is 10 kHz (No.of side band = 8).

B) Attempt **any two**. **8**

a) Draw the well labeled diagram of graphic equalizer.
b) Define amplitude modulation. Explain the need for modulation in communication system.
c) Draw the block diagram of indirect method of generation of frequency modulation.

2. Attempt **any four** . **16**

a) Draw the construction of moving coil cone type loud speaker and give its working principle.
b) Draw the circuit diagram of Audio Amplifier with different controls, stating the function of each.
c) Draw and explain the block diagram of a Hi-Fi system.
d) Why pre-emphasis and De-emphasis circuits are used for noise reduction ? (Four points).
e) Draw the time domain and frequency domain spectrum of AM wave

Marks

f) Define :
   i) Frequency deviation
   ii) Modulation index
   iii) Deviation ratio and
   iv) Percentage modulation for FM wave.

3. Attempt **any four.** **16**

a) Explain the concept of stereophony. What is the difference between monophony and stereophony.
b) With neat block diagram explain the working of public address system.
c) What is meant by detection in optical sound recording ? Describe its operation.
d) Explain the concept of vestigial sideband.
e) Explain the method for generation of DSBSC AM signal using diode balanced modulator.
f) Explain the generation of FM using varactor diode.

4. Attempt **any four**. **16**

a) Draw multiway speaker system and describe its working.
b) Draw circuit diagram and explain the working principle of complementary symmetry push-pull amplifier.
c) State the need and application of public address system.
d) Explain the principle of reproduction of sound from a recorded film.
e) Draw the block diagram of AM transmitter and state function of each block.
f) Differentiate FM from AM (Four points).

5. Attempt **any four.** **16**

a) Why cross over network is necessary ? Describe the operation of 3 way cross over network.
b) What are the causes affecting fidelity ? Give their remedies.
c) State the four specification of public address system.
d) Draw and describe optical recording of sound on film is done by variable density method.
e) A 500 watt carrier is modulated to depth of 80%. Calculate.
   i) Total power in AM wave ii) Power in sidebands.
f) Draw the block diagram of FM transmitter and explain its operation.

6. Attempt **any four.** **16**

a) State the characteristics of human ear response to the Audio frequency.
b) With neat sketch, explain installation of PA system for public meeting.
c) State the reasons due to which noise is reduced in Dolby system as compared to other audio system.
d) Draw neat block diagram and explain optical recording process in CD's.
e) Define modulation index of an AM wave and give the mathematical representation of AM wave.
f) Define phase modulation and its modulation index.
