



17316

15116

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) *All questions are **compulsory**.*
 - (2) *Illustrate your answers with neat sketches **wherever** necessary.*
 - (3) *Use of Non-programmable Electronic Pocket Calculator is **permissible**.*
 - (4) *Mobile Phone, Pager and any other Electronic Communication devices are **not** permissible in Examination Hall.*
 - (5) ***Do not** write anything on question paper.*
 - (6) ***Do** rough work at the **back** of main answer book.*

	Marks
1. A) Attempt any six :	12
i) List four selection criteria of microphones .	2
ii) State different characteristics of audio amplifier.	2
iii) Define frequency modulation and its modulation index.	2
iv) List advantages of C.D.	2
v) State the methods of optical recording of sound on film.	2
vi) Define AM.	2
vii) List different tone controls.	2
viii) List any three voltage and power amplifiers.	2
B) Attempt any two :	8
i) Derive the mathematical expression for modulation index in AM.	4
ii) What is the bandwidth required for FM signal in which modulating frequency is 3 KHz and the maximum deviation is 15 KHz.	4
iii) Explain variable density method of optical recording of sound.	4
2. Attempt any four :	16
i) Explain concept of reverberation and its necessity.	4
ii) Define and explain the terms : Pre-emphasis and de-emphasis.	4
iii) Draw neat block diagram of PA system and give function of each block.	4
iv) Give reasons why optical recording is better than magnetic recording system.	4
v) Describe how DSBSCAM signal is generated by diode balance modulator with neat diagram.	4
vi) Draw neat diagram of reactance modulator and write its operating principle.	4

P.T.O.

**Marks**

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| 3. Attempt any four : | 16 |
| i) If 60 KW of carrier power is radiated by a broadcast AM transmitter, then what will be the power radiated at 75% modulation. | 4 |
| ii) Define modulation, why it is needed. | 4 |
| iii) What is the bandwidth required for an FM signal in which the modulating frequency is 1 KHz and maximum deviation is 7 KHz. | 4 |
| iv) Calculate power in side bands if a 800 watt carrier is amplitude modulated to the depth of 70%. | 4 |
| v) Explain Dolby-B system of noise reduction. | 4 |
| vi) Draw and explain block diagram of communication system. | 4 |
| 4. Attempt any four : | 16 |
| i) Explain Armstrong frequency modulator system with its operation. | 4 |
| ii) List different types of analog modulation technique and give reason why it is needed. | 4 |
| iii) List any four specifications of PA system. | 4 |
| iv) Give constructional details of ribbon microphone with neat diagram. | 4 |
| v) Compare monophony and stereophony. | 4 |
| vi) Explain manufacturing process of compact disk with relevant diagrams. | 4 |
| 5. Attempt any four : | 16 |
| i) Differentiate between direct and indirect methods of FM generation. | 4 |
| ii) Draw block diagram of AM transmitter. Write function of antenna. | 4 |
| iii) Explain the concept of tie dip microphone and state its application. | 4 |
| iv) Compare audio and power amplifiers. | 4 |
| v) Give any four points of comparison between woofer and tweeter. | 4 |
| vi) With neat diagram, describe generation of SSB AM signal using third method. | 4 |
| 6. Attempt any four : | 16 |
| i) Give reason why multiway speaker system is needed for good sound quality. | 4 |
| ii) Explain operation of BASS control circuit with the help of neat circuit diagram. | 4 |
| iii) Give the PA system layout and planning for an auditorium. | 4 |
| iv) Draw block diagram of Hi Fi system. List any two applications of it. | 4 |
| v) List various causes affecting fidelity of system. | 4 |
| vi) Compare AM and FM (any 4 Pts.). | 4 |
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