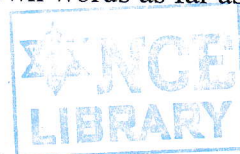


TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2079 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEI, BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (Elective II) (EX 76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.



1. What is a sound? How is it generated? Define the major properties of sound energy. [2+2+4]
2. What is a modulation? How many its types in radio broadcasting system? Explain each of them with necessary diagrams. [2+1+6]
3. What are luminance and chrominance? Distinguish between PAL and SECAM television systems comparing with various aspects. [3+6]
4. What is a speaker? Describe the working functions of dynamic microphone and crystal microphone with neat diagrams. [2+4+4]
5. How does radio wave propagate from the antenna? Differentiate between AM and FM receiving techniques with various comparisons. [3+6]
6. Explain the medium wave (MW) propagation with necessary diagram. Why AM system is chosen for regional radio broadcasting? [4+4]
7. Describe briefly on the optical cable television network with necessary block diagrams. How does the satellite communication system play an important role in the network? [5+4]
8. Discuss briefly on radio navigation system necessary block diagram. How does GPS system function? Explain clearly with necessary diagrams. [4+5]
9. Write short notes on: (Any Three) [3×3]
 - a) Direct TV
 - b) STL
 - c) Sky wave propagation
 - d) DAV signal



THIRUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2079 Jestha

Exam.	Mark		
Level	BE	Full Marks	80
Programme	BEX	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (Elective II)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. What is an acoustic energy? Define the major properties of sound. [3+5]
2. What is a scanning? How many its types? Explain each of them with necessary diagrams. [2+1+6]
3. What is a television broadcasting? Differentiate between PAL and NTSC television systems in various aspects. [3+6]
4. What is a microphone? Describe the working functions of carbon microphone and ribbon microphone with neat diagrams. [2+4+4]
5. How does the radio signal propagate on the space? Distinguish between AM and FM transmission techniques with various comparisons. [3+6]
6. Explain the short wave (SW) propagation with necessary diagram. What are the major characteristics of ionospheric waves? [3+5]
7. Describe briefly on the cable television system with necessary block diagrams. How is it connected with satellite communication systems? [6+3]
8. Discuss briefly about the radio studio with radio air chain necessary block diagram. Why is it necessary to have studio-to-transmission line (STL) in the radio/television broadcasting systems? [6+3]
9. Write short notes on: (Any Three) [3×3]
 - a) IPTV
 - b) Space wave propagation
 - c) GPS system
 - d) Sampling rate



TRIMULWAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2079 Shrawan

Exam.	Institution: TUE Back		
Level	BE	Full Marks	80
Programme	BEX	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (*Elective II*) (EX76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Explain the different factors that affect the speed of the sound wave in a medium. [4]
2. Discuss about progressive and interlaced scanning used in TV system. Compare between NTSC and PAL analog TV standard. [6+6]
3. Why modulation is needed? Write down advantage of AM modulation. [4+7]
4. What is frequency modulation index? Draw and explain FM transmitter circuit. [2+4]
5. Draw the block diagram of Chain of AM transmitter and briefly explain each block. [6]
6. What are the basic requirements of FM broadcasting? Explain with block diagram. [8]
7. Draw a neat block diagram of transmission site facilities used in TV broadcasting and discuss briefly each block. [8]
8. What is IPTV system? How does it differ from cable system? [8]
9. What is GPS system? How does this system work? What are the parameters on which accuracy of GPS depends on? [8]
10. Write short notes on: (Any Three) [3×3]
 - a) Ribbon microphone
 - b) Sky wave
 - c) Sampling theory
 - d) STL link

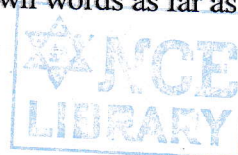
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TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2077 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (Elective II) (EX76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt **All** questions.
- ✓ The figures in the margin indicate **Full Marks**.
- ✓ Assume suitable data if necessary.



1. What is meant by psychoacoustics? Explain about the analog TV standard commonly used in south Asian countries. [2+6]
2. List different types of microphones. Explain ribbon and carbon microphones with required diagrams. [2+6]
3. Why interlaced scanning is done in television system? Explain the types of different color television standard briefly. [2+6]
4. Explain about radio wave propagation. Mention any two analog recording devices and explain it. [4+4]
5. What are the salient features of a studio? Draw the block diagram of radio broadcast air chain and explain each block briefly. [3+5]
6. What are the factors taken into consideration while selecting location of transmitting antenna for a radio/TV station? Explain about FM transmission briefly. [3+5]
7. Explain the types of digital recording devices. [7]
8. What are the different signal sources for cable TV? Describe cable head end system with block diagram. [3+5]
9. What is the working principle of GPS? Write the applications of GPS. [4+4]
10. Write short notes on: (Any Three) [3×3]
 - a) IPTV
 - b) MPEG
 - c) Remote broadcasting
 - d) DTH

NATIONAL COLLEGE OF ENGINEERING

QUESTION BANK Broadcast Engineering (Elective II)(EX76503)

BEX,BCT IV/II

BE001



BE001

25 I TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2075 Bhadra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEX	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (Elective II) (EX76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt **All** questions.
- ✓ The figures in the margin indicate **Full Marks**.
- ✓ Assume suitable data if necessary.

1. Explain the characteristics of sound wave. Write down the advantages of frequency modulation over amplitude modulation. [4+4]
2. Define television system. State difference between monochrome and color television system. [2+7]
3. What is interlaced scanning in television system? Explain the types of color television standard briefly. [2+7]
4. Explain the block diagram of radio broadcast air chain clearly. [8]
5. What are the requirements of television studios? Explain the television production studio with block diagram. [4+6]
6. Explain about AM radio and AM transmission system briefly. [8]
7. Explain the types of analog recording devices. [8]
8. Define radio navigational system. Explain the uses and application of GPS system. [2+6]
9. Explain the working of cable TV distribution system with block diagram. [6]
10. Write short notes on: (Any two) [2×3]
(a). HDTV (b). Internet Radio (c). DAB (d). Remote broadcasting

351 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2074 Magh

Exam.	Back		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (*Elective II*) (EX76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt **All** questions.
- ✓ **All** questions carry equal marks.
- ✓ Assume suitable data if necessary.

1. What is sound? What are its different characteristics? List and briefly explain them. Also State the speed, frequency and wavelength relation and write the formula.
2. Draw the block diagram of a typical TV Production studio. Also explain each components.
3. What is remote broadcasting? List the different contribution and acquisition systems used in News and remote production.
4. What do you understand by AM transmission? Briefly mention about AM emission masks and frequency spectrum used in MW and SW bands. Also compare the AM and FM emission mask with sketch.
5. What do you understand by FM transmission? Briefly mention about FM emission masks and frequency spectrum used.
6. Draw the block diagram of generation of a DAB signal at transmitter and its demodulation at the receiver side. And briefly explain it.
7. Draw the block diagram of generation of a DVB signal at transmitter and what does AES/EBU, SMPTE 259M and SMPTE 292M each signify? Briefly explain it.
8. Name the different types of propagation used in AM radio, FM radio and TV signal transmission. Explain in detail.
9. What do you mean by acoustic treatment in Studio and why? Explain with sketch.
10. Write Short notes

a. HDTV b. IPTV c. DTH d. Online Radio.Station

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35 I TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2073 Bhadra

Exam.		Regular	
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (Elective II) (EX76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. What is Television system? State basic difference between monochrome and color video signals. Also explain Scanning and its formulation in TV camera? [1+3+4]
2. Name the different types of propagation used in AM radio, FM radio and TV signal transmission. Briefly mention about AM/FM emission masks with frequency spectrum used. [8]
3. What are different Cable TV source signals used and write how the signal processing is done for each source? Also Sketch the Head-end block diagram and explain each block. [8]
4. What is sound? What are its different characteristics and behavior exhibited in a medium? List and briefly explain them. State the speed frequency and wavelength relation and their formula. [4+4]
5. Describe each equipment in the block of a Television Broadcast Air Chain showing studio and transmitter facilities. Draw a neat block diagram for the same. [5+3]
6. List and explain briefly different Video and Audio Storage or Tape Equipment that are used in the TV and Radio broadcasting industry. [8]
7. What are Contribution, Distribution and Transmission links used in Radio and TV broadcasting? Write the main features of equipment used in Remote or Field News Gathering. [4+4]
8. Draw and briefly explain the block diagram of generation of a DVB signal at transmitter and its reproduction at the receiver side. [8]
9. Write short notes on: [4×4]
 - a) Digital Video
 - b) Sky wave and Space wave propagation
 - c) Stereo Coding of FM audio signal
 - d) Block Diagram of Digital Camera



35 I TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2073 Magh

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (Elective II) (EX 76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. What is sound? What are its different characteristics? List and briefly explain them. Also state the speed, frequency and wavelength relation and formula. [4+4]
2. In Analogue TV transmission, discuss and tabulate the salient points of different colour TV systems deployed worldwide. [8]
3. Define Component and composite video signal? What is the function of the sync signal in TV system? Also explain Luminance, Chrominance, horizontal and vertical blanking intervals. [3+1+4]
4. Draw the block diagram of a typical TV Production studio. And explain each block. [8]
5. What do you understand by FM transmission? Briefly mention about FM emission masks and frequency spectrum used. [8]
6. Describe contribution links, distribution link and STL link for Radio programs. Explain its types with details. [8]
7. Discuss briefly about the Cable TV distribution systems indicating Cable TV frequency bands. Likewise, draw the Cable Headend block diagram for different Cable TV source signals used. [4+4]
8. Draw the block diagram of generation of a DAB signal at transmitter and its Demodulation at the receiver side. And briefly explain it. [8]
9. Discuss briefly about the transmitter site facilities used in TV broadcasting with a neat block diagram. [8]
10. Write short notes on following: [4×2]
 - a) Radio and TV News Gathering
 - b) Need for acoustic treatment
 - c) DTH
 - d) Difference between chrominance and luminance signals

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35H TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2072 Ashwin

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (Elective II) (EX76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Define reflection, refraction, diffraction, diffusion and superposition of sound waves with sketch? [9]
2. In Analogue TV transmission, discuss the features of different colour TV systems deployed worldwide. [9]
3. Describe different contribution links for Radio programs. [9]
4. Describe each equipment in the block of a Radio Broadcast Air Chain showing studio and transmitter facilities. Draw a neat block diagram for the same. [9]
5. What do you understand by FM transmission? Briefly mention about FM emission masks and frequency spectrum used. [9]
6. Draw a neat block diagram of the transmitter equipment blocks used in TV broadcasting. Discuss briefly about importance of each block. [9]
7. What are different Cable TV source signals used and write how the signal processing is done for each source? Draw the Block diagram of Head End and Distribution system of Signal in Cable Television? [9]
8. Draw and briefly explain the block diagram of generation of a DVB signal at transmitter and its demodulation at the receiver side. [9]
9. Write short notes on: (any four) [4×2]
 - i) HDTV
 - ii) IPTV
 - iii) DTH
 - iv) DAW
 - v) Ingesting and editing



351 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2072 Magh

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (Elective II) (EX76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Define Reflection, refraction, diffraction, diffusion and superposition of sound waves. State the speed, frequency and wavelength of sound and write the formula showing their relation. [8]
2. What is Acoustic? Why do we need acoustic treatment in studio? Briefly explain them. Explain how do you measure Sound level? [8]
3. List and explain briefly about different Video and Audio Strong or Tape Equipment that are used in the TV and Radio broadcasting industry. [8]
4. Sketch the block diagram of Radio Production Studio and explain the function of each block in details. [8]
5. What are Contribution, Distribution and Transmission links used in Radio and TV broadcasting? Write the main features of equipment used in Remote or Field News Gathering. [8]
6. Draw the block diagram of TV transmitter and explain the functions of each block in details. [8]
7. Draw the Cable Headend block diagram for different cable TV source signals used. Discuss briefly about the Cable TV distribution systems indicating Cable TV frequency bands. [8]
8. Draw the block diagram of generation of a DAB signal at transmitter and its demodulation at the receiver side. And briefly explain it. [8]
9. Write short notes on: (any four) [4×4]
 - a) HDTV
 - b) Sky wave and Space Wave Propagation
 - c) Stereo Coding of FM audio signal
 - d) Use of Subcarriers in Radio and TV
 - e) Chrominance and Luminance signals

10

35D TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2071 Bhadra

Exam.	Regular / Back		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Broadcast Engineering (*Elective II*) (EX76503)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ All questions carry equal marks.
- ✓ Assume suitable data if necessary.

008

1. What is a sound? What are its properties? Briefly explain them.
2. What is a scanning? Briefly describe how the scanning occurs in TV cameras and also define Luminance, Chrominance, horizontal and vertical blanking intervals.
3. Draw the neat block diagram of a Radio Broadcast Air Chain. Describe each equipment in the block.
4. List and explain briefly different Video Tape and Audio Tape Equipment that are used in the TV and Radio broadcasting industry.
5. What are AM and FM transmissions? Briefly explain Radio spectrum and emission masks employed in each of the transmission system.
6. Discuss briefly about the transmitter site facilities used in TV broadcasting with a neat block diagram.
7. What are different Cable TV source signals used and write how the signal processing is done for each source? Draw the Block diagram of Head End and Distribution system of Signal in Cable Television?
8. Draw the block diagram of generation of a DAB signal at transmitter and its demodulation at the receiver side. And briefly explain it.
9. Write short notes on: (any four)
 - a) HDTV
 - b) Sky wave and Space wave propagation
 - c) DTH
 - d) Online Radio Station
 - e) Chrominance and Luminance signals
