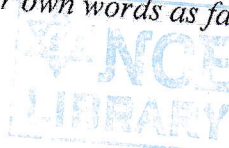


TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2082 Chaitra

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

Subject: - Multimedia System (Elective III) (CT 78503)

- ✓ 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.



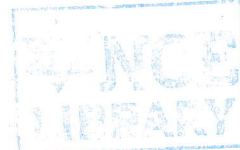
1. Explain different types of medium. Explain different phases that occurs during development of multimedia application. [3+6]
2. Describe the computer representation of sound. Calculate the file size in bytes for a 60 second recording at 44.1 kHz, 16 bits resolution stereo sound. [6+5]
3. Explain in detail about image processing steps. Differentiate between RGB and CMY color model. [5+4]
4. Differentiate between video and animation. Explain the various types of animation software with example. [5+6]
5. Explain how Huffman coding reduces the file size with an example. Differentiate between lossy sequential DCT- based mode and expanded lossy DCT-based mode. [6+6]
6. Discuss the user interface design process in detail. Explain multimedia design components with example. [5+4]
7. Discuss the abstraction levels of the programming of multimedia system with block diagram in detail. [10]
8. Explain the applications of multimedia in media Integration and virtual reality. [9]

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2082 Shrawan

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

Subject: - Multimedia System (Elective III) (CT 78503)

- ✓ 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 different types of medium. Explain different phases that occurs during development of multimedia application. [5+4]
2. Explain in details the process of speech recognition and generation. Calculate the file size in bytes for a 40 second recording at 44.1 kHz, 8 bits resolution mono sound. [6+5]
3. Discuss the various stages used for computer-based animation. Explain the different types of animation used in Multimedia system application development. [5+4]
4. What is dithering technique? Explain about image transmission. How bitmap image is advantages over vector images? [3+4+4]
5. Distinguish between lossless and lossy compression. Describe the LZW compression and decompression techniques with your own example. [5+8]
6. What are the main components of multimedia interface? Discuss user interface design process in detail. [4+5]
7. Discuss the abstraction levels of the programming of multimedia system with block diagram. Explain the libraries and object-oriented approaches in terms of multimedia system. [6+3]
8. Explain the application of multimedia in e-learning and entertainment. [9]

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2081 Chaitra

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

Subject: - Multimedia System (Elective III) (CT 78503)

- ✓ 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.



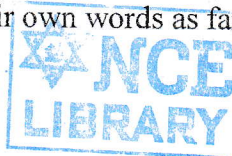
1. List and explain the various stages of multimedia application development. [9]
2. Comparison between MIDI and digital audio. Calculate the file size in bytes for a 60 second recording at 44.1 kHz, 16 bits resolution stereo sound. [6+5]
3. Explain the different stages used for computer-based animation. Explain the different types of animation used in multimedia system application development. [5+4]
4. What is dithering technique? List and explain various types of colour model use in image and video. [3+8]
5. Explain why lossy data compression is preferred over lossless. A certain source emits symbols {A,B, C, D, E} with corresponding probabilities $P(A) = 0.15$, $P(B) = 0.40$, $P(C) = 0.08$, $P(D) = 0.25$ and $P(E) = 0.12$ then derive this problem using Huffman code tree for each symbol. [5+6]
6. Mention the multimedia interface components and explain in detail each of them with example. How hypermedia and hyperlink play crucial role in user interface in multimedia. [6+4]
7. Discuss the abstraction levels of the programming of multimedia system with block diagram. Explain the libraries and toolkits in use abstraction for programming. [6+4]
8. Explain the applications of multimedia in media integration and virtual reality. [9]

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2080 Chaitra

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

Subject: - Multimedia System (Elective III) (CT 78503)

- ✓ 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.



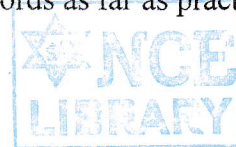
1. Explain the multimedia application development life cycle with example. [9]
2. Define speech analysis process. Calculate the file size in bytes for 30 seconds of stereo music at 44.1 KHz with 8 bits resolution. [4+5]
3. How an image is represented in digital media? Differentiate between RGB and CMY colour model. [4+5]
4. Explain the Computer based animation with example. Discuss the various 3D animation software with example. [6+6]
5. Explain the role of data compression in multimedia system. Explain the process to create Huffman coding tree with appropriate example and justify how Huffman coding reduces the file size? [5+8]
6. Explain in brief about different types of components used in user interface design and also discuss the general designing tips for the multimedia user interface. [5+5]
7. Explain the abstraction level of programming in multimedia System with diagram. [9]
8. Why virtual reality (VR) is popular in multimedia application development? Explain the application of multimedia in Video Conferencing with example. [4+5]

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2079 Chaitra

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

Subject: - Multimedia System (Elective III) (CT78503)

- ✓ 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.



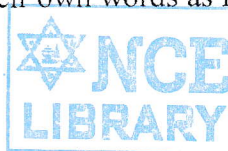
1. Explain how multimedia can be used to enhance the health and education sector of Nepal? Explain in brief about Device Domain and Application Domain with reference to Multimedia System Structure. [5+4]
2. Comparisons between MIDI versus Digital Audio. Calculate the file size in bytes for a 60 second recording at 44.1 KHz, 16 bits resolution stereo sound. [6+5]
3. What is digital image representation? Differentiate between RGB color mode and CMYK color model with example. [3+7]
4. What are different steps used for computer based animation? Mention the different types of animation software used in Multimedia application development. [5+5]
5. What are the major differences between lossless and lossy compression? Mention the Huffman coding steps with example and justify how Huffman code reduces the file size? [5+8]
6. Classify the user interfaces types with suitable example. Explain the user interface design process in brief. [5+4]
7. Discuss the abstraction levels of programming used in multimedia system with block diagram. [9]
8. Why virtual reality (VR) in multimedia entertainment is being popular? Explain the concept of video conferencing in multimedia system. [4+5]

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2078 Chaitra

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

Subject: - Multimedia System (Elective III) (CT78503)

- ✓ 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 global structure of multimedia system. What are the different types of medium? Explain. [5+4]
2. Why MIDI devices are required in multimedia system? What are the components of MIDI devices? Calculate the file size in bytes for 60 second recording at 44.1 KHz, 8 bits resolution stereo sound. [2+3+5]
3. Write about image synthesis, analysis and transmission. List out the various color models and describe them in brief. [4+5]
4. Explain different steps used for computer based animation. Discuss the various animation software and various types of animation. [5+6]
5. Explain the basics of JPEG compression techniques. Explain the Huffman coding algorithm with example. How Huffman code reduce the file size? [4+5+5]
6. Explain multimedia interface components in detail with example. [9]
7. Explain abstraction level of programming in multimedia system with the help of block diagram. [9]
8. Explain the applications of multimedia in video conferencing and virtual reality. [9]

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: - Multimedia System (Elective III) (CT78503)

- ✓ 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.



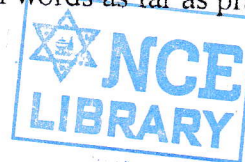
1. Mention the various phases in multimedia application development and explain each phase with deliverable. [9]
2. How MIDI Sounds are synthesized? How MIDI files are different from digital audio. [5+5]
3. Differentiate between MPEG compression process with JPEG compression process. [9]
4. Explain the process to generate the computer based animation. Explain the various animation languages use in Multimedia system. [4+7]
5. Explain about data compression. Explain the LZW decompression algorithm with use an example of your own to illustrate and justify. [5+9]
6. Explain various steps for the multimedia user Interface design in audio and video with example. [9]
7. Explain with diagram of various abstraction levels of programming use in multimedia system. [9]
8. Explain the applications of multimedia in video conferences. How it is beneficial in the educational field? [5+4]

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2076 Bhadra

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

Subject: - Multimedia System (Elective III) (CT 78503)

- ✓ 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 application development life cycle of multimedia systems. [9]
2. Comparison between quality versus file size. Calculate the file size in bytes for a 60 second recording at 44.1 KHz, 8 bits resolution stereo sound. [5+5]
3. Explain with steps of the JPEG compression process in detail with example. [9]
4. Comparisons between RGB colour model, CMY Colour model and HSB Colour model. [11]
5. What do you mean by lossy compression? Explain the Huffman coding process to create Huffman code tree with example. Justify how Huffman code reduces the file size? [4+10]
6. Mention the multimedia interface components and explain in detail each of them with example. [9]
7. Discuss the abstraction levels of the programming of multimedia system with block diagram. [9]
8. Explain the applications of multimedia in telemedicine and e-learning. [9]

26 C TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2075 Bhadra

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

Subject: - Multimedia System (Elective III) (CT78503)

- ✓ 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 global structure views for multimedia systems and also briefly explain the multimedia application development method. (5+4)
2. Explain in detail the process of speech recognition and generation. Calculate the file size in bytes for a 30 second recording at 44.1 KHz, 8 bits resolution stereo sound. (5+5)
3. What are bitmap images? Explain the advantages and disadvantages of bitmap over vector images. (3+6)
4. Differentiate between video and animation. Explain the various techniques associated with animation and also explain the various software tools available for animation nowadays? (4+7)
5. Compare JPEG and MPEG. What are the steps to create the Huffman code tree? Explain with example how Huffman code reduce the file size? (4 +4+6)
6. Discuss the user interface design process for multimedia with block diagram. (9)
7. Explain the abstraction levels of the programming of multimedia with block diagram. (9)
8. Explain the applications of multimedia in media entertainment such as interactive TV and video on demand. (9)

36C

TRIBHUVAN UNIVERSITY

INSTITUTE OF ENGINEERING

Examination Control Division

2074 Bhadra



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

Subject: - Multimedia System (Elective III) (CT78503)

- ✓ 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 are the different stages in multimedia application development? Explain with example. (3+6)
2. Explain about audio hardware and audio software. Differentiate between MIDI over digital audio. (5+5)
3. Explain the steps of the JPEG compression process in detail. (9)
4. Different colour models are often used in different applications. What is the CMYK colour model? Give an application in which this colour model is mostly used and explain the reason. (3+3+5)
5. Explain why lossy data compression is sometimes preferred over lossless. Justify. A certain source emits symbols {A,B, C, D, E} with corresponding probabilities $P(A)=0.06$, $P(B)=0.48$, $P(C)=0.02$, $P(D)=0.20$, $P(E)=0.24$. Create a Huffman code tree and also derive the Huffman code for each symbol. (4+5+5)
6. Explain the general design guidelines for the multimedia user interface design and also mention the multimedia interface components. (5+4)
7. Explain the abstraction levels of the programming use in multimedia system with block diagram (9)
8. Explain the applications of multimedia in Video Conference system with example. (9)

37

36C TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2074 Magh

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

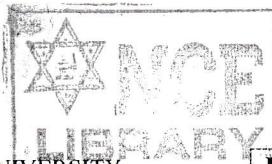
Subject: - Multimedia System (*Elective III*) (CT78503)

- ✓ 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 components used to build the multimedia systems. (9)
2. Explain the Image recognition steps in detail. (10)
3. What are the steps of the JPEG compression process? Explain. (9)
4. Explain the Dithering technique. Differentiate between RGB and CMY colour models with example. (5+6)
5. Why do we need data compression? Explain the Huffman coding algorithm with example. (4+10)
6. Explain the steps of the multimedia user Interface design with example. (9)
7. What are the abstraction levels of the programming of multimedia system? Explain with block diagram. (9)
8. Explain the applications of multimedia in media communication and entertainment. (9)

42



36 C TRIBHUVAN UNIVERSITY

INSTITUTE OF ENGINEERING

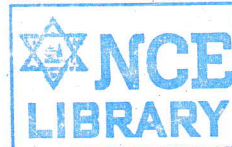
Examination Control Division

2073 Bhadra

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

Subject: - Multimedia System (Elective III) (CT78503)

- ✓ 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 various phases of multimedia application development. (9)
2. Differentiate between MIDI and WAV audio formats. ? Calculate the file size in bytes for a 20 second recording at 44.1 KHz, 16 bits resolution stereo sound. (5+5)
3. Define dithering. Explain in detail of Image recognition steps with example. (3+6)
4. Compare between Video and animation. Explain the HSB color model and YUV colour model. (4+7)
5. Differentiate between loss-less and Lossy data compression. What are the steps to create the Huffman code tree? Explain with example. (6 +8)
6. Discuss the design guidelines for multimedia user Interface with example. (9)
7. Explain the abstraction levels of the programming with respect to multimedia data and their relations with block diagram. (9)
8. Explain the applications of multimedia in media entertainment such as interactive video and audio. (9)

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

Subject: - Multimedia System (Elective III) (CT78503)

- ✓ 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 global structure of multimedia system with diagram. (9)
2. Differentiate between MIDI and digital audio. Explain the Computer representation of sound with example. (4+6)
3. What is image enhancement? The table on the left below represents an indexed image. The table on the right is colour index table. What is the colour of the following pixels: (0,2), (1,1), (1,3), (2,1), (2,2), (3,0). (3+6)

	0	1	2	3
0	2	3	0	3
1	7	2	1	5
2	5	6	4	4
3	2	7	5	0

	R	G	B
0	0	255	0
1	255	0	0
2	0	0	255
3	0	0	0
4	255	255	0
5	127	127	127
6	255	0	255
7	255	255	255

4. Differentiate between Video and animation. Explain the RGB color model and CMY colour model. (4+7)
5. Explain the data compression methods. Explain the steps to create Huffman code tree with example. (6+8)
6. What are the design guidelines for designing the multimedia user Interface for Multimedia system? Explain with example. (9)
7. Explain the Libraries, system software, higher programming languages and object-oriented approaches in terms of multimedia system. (9)
8. Explain the applications of multimedia in media entertainment. (9)

46C TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2072 Magh

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

Subject: - Multimedia System (*Elective III*) (CT78503)

- ✓ 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. Compare among application domain, system domain and device domain. (9)
2. Explain the audio hardware. Calculate the file size if we record the 20 second of stereo music at 44.1 KHz with 8 bits. (5+5)
3. Differentiate between image and graphics. Explain the computer image processing with example. (3+6)
4. What is dithering technique? Differentiate between HSB color model and YUV colour model. (5+6)
5. Explain the Huffman Coding and also explain the steps to create Huffman code tree with example. (4+10)
6. Explain the general design guidelines for designing the multimedia user interface for Multimedia system with example. (9)
7. What are the abstract levels of programming of multimedia systems? Explain. (9)
8. Explain the applications of multimedia in tele-services. (9)

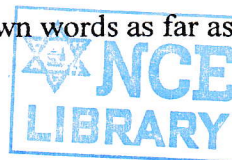
37

36B 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: - Multimedia System (Elective III) (CT78503)

- ✓ 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 global structures of multimedia system with diagram. (9)
2. Explain the audio software. Calculate the file size if we record the 10 second of stereo music at 44.1-KHz with 16 bits. (4+6)
3. Distinguish between image and graphics. Explain about image synthesis, analysis and transmission. (3+6)
4. Explain the Video and Animation. Differentiate between RGB color model and CMY colour model (5+6)
5. What do you mean by data compression techniques? What are the steps to create a Huffman code tree? Explain with example. (4+10)
6. Explain with example of the structure guidelines for designing good user interface for multimedia system. (9)
7. Differentiate between higher programming language approaches and Object oriented approaches (9)
8. What are the applications of multimedia in educations? Explain. (9)
