

University of Mumbai
Examinations Summer 2022
ECCDLO5012: TV AND VIDEO ENGINEERING

Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Interlacing is used in television to to:
Option A:	Produce the illusion of motion
Option B:	Ensure that all the lines on the screen are scanned, not merely the alternate ones
Option C:	Simplify the vertical sync pulse train
Option D:	Avoid flicker
2.	Equalizing pulses in TV are sent during:
Option A:	Horizontal Blanking
Option B:	Vertical Blanking
Option C:	The Serrations
Option D:	The Horizontal Retrace
3.	Compatibility implies that:
Option A:	The colour television signal must produce a normal black and white picture on a monochrome receiver without any modification of the receiver circuitry.
Option B:	The monochrome signal must produce a normal black and white picture on a colour receiver without any modification of the receiver circuitry
Option C:	The monochrome signal must produce a colour picture on a colour receiver without any modification of the receiver circuitry.
Option D:	The colour television signal must produce a colour picture on a colour receiver without any modification of the receiver circuitry.
4.	Why are the colour difference signals transmitted instead of the original colour?
Option A:	To save time
Option B:	To save bandwidth
Option C:	For compatibility considerations
Option D:	To reduce interference
5.	What is the line rate?
Option A:	Frame rate multiplied by the number of lines per total frame.
Option B:	Number of lines multiplied by vertical frequency.
Option C:	Horizontal frequency multiplied by vertical frequency.
Option D:	Number of lines multiplied by horizontal frequency.
6.	Which of the following DVB systems uses Variable Coding and Modulation and Adaptive Coding and Modulation?
Option A:	DVB-T
Option B:	DVB-S2
Option C:	DVB-H
Option D:	DVB-S
7.	_____ detects the satellite signal relayed from the feed and converts it to an electric current, amplifies and lowers its frequency.

Option A:	Horn antenna
Option B:	LNA
Option C:	Satellite receiver
Option D:	Satellite dish
8.	Time period for chrominance signal in MAC encoding format is:
Option A:	25 microseconds
Option B:	35 microseconds
Option C:	64 microseconds
Option D:	17 microseconds
9.	In MAC encoding scanning frequency for luminance is _____ and for chrominance is _____:
Option A:	24 MHz and 13.5 MHz
Option B:	13.5 MHz and 6.75MHz
Option C:	28 MHz and 13.5 MHz
Option D:	6.75 MHz and 4.7 MHz
10.	The colour of emitted light from LED depends on
Option A:	Construction of LED, that is physical dimensions
Option B:	Number of available carriers
Option C:	Type of semiconductor material used
Option D:	Number of recombination's taking place

Q2	
A	Solve any Two 5 marks each
i.	Draw the block diagram of the monochrome TV transmitter and explain its working.
ii.	Draw composite video signal and explain : i. DC component of video signal ii. Pedestal height iii. Blanking pulses
iii.	What do you understand about compatibility in television systems? What are the requirements to be understood to make a color TV system fully compatible?
B	Solve any One 10 marks each
i.	Draw and explain Image orthicon type camera tube in detail.
ii.	With the neat labeled diagram explain the NTSC receiver.

Q3	
A	Solve any Two 5 marks each
i.	Why is the (G-Y) signal not transmitted?
ii.	Explain what component digital video is.
iii.	Explain advantages of digital TV.
B	Solve any One 10 marks each
i.	What is Chroma subsampling? Explain the concept of Chroma subsampling with

	its type.
ii.	Draw and explain the working of DTH system with the help of neat diagram.

Q4	
A	Solve any Two 5 marks each
i.	Compare DVB-T2 and DVB-T.
ii.	Draw and explain MAC encoding format
iii.	List advantages of LED type television display.
B	Solve any One 10 marks each
i.	Explain HDTV compatibility for 1250 line and 1125 line.
ii.	Explain the working principle of LED display with a diagram and compare the LED and LCD type of television displays.