

Subject: - Consumer Electronics (22425)





Chapter No.	Name of chapter	Marks With Option
1	Audio Fundamentals	14
2	Audio Systems	18
3	Television Fundamentals and Transmitters	22
4	Television Receivers	22
5	Consumer Electronic Appliances	24
	Total Marks :-	100

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BOARD THEORY PAPER PATTERN FOR ALL BRANCHES

Q.1		Attempt any FIVE 5*2=10	
	a)	Draw block diagram of CD player.	
	b)	List the different components used in CD player.	
	c)	Compare woofer & midrange speaker (any two points).	
	d)	Describe the function of MUSE system for HDTV.	
	e)	State any four electrical specifications of microwave oven.	
	f)	Differentiate between mono and stereo amplifier w.r.t (i) no. of amplifier (ii) applications.	
	g)	Explain the function of exposer in photocopier machine.	
Q.2		Attempt any THREE 3*4=12	
	a)	Describe the operating principle of condenser type of microphone with neat diagram.	
	b)	Draw and explain the working of MP3 player.	
	c)	State Grassman's law. Draw the sketch of additive mixing.	
	d)	State working principle and explain working of LCD TV with appropriate diagram.	
Q.3		Attempt any THREE 3*4=12	
	a)	Explain working of Digital camcorder.	
	b)	State four Electrical specifications with values for washing machine.	
	c)	Draw the block diagram of PAL-D decoder and write function of each block.	
	d)	State any four CCIR-B standard for colour signal transmission and four CCIRB standards for reception in TV.	
Q.4		Attempt any FOUR 3*4=12	
	a)	Explain VSB transmission. State its any four advantages.	
	b)	Draw and describe DTH System.	
	c)	Describe Troubleshooting procedure of colour TV receiver system.	
	d)	Explain any four basic characteristics of sound signal.	
	e)	State any four characteristics of Hi-Fi amplifier system.	
Q.5		Attempt any TWO 2*6=12	
	a)	Explain OLED TV with neat labelled diagram.	
	b)	Draw block diagram of washing machine and state types of washing machine.	

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	c)	Describe why equalizing pulses are needed. Draw the vertical synchronizing pulse structure.	
Q.6		Attempt any FOUR 2*6=12	
	a)	i) Describe vertical and horizontal resolution in brief.	
		ii) Draw miller sweep generation and give its applications.	
	b)	(i) Name the block diagram shown in fig.1	
		(ii) Identify the block "A", "B" & "C" in given block diagram.	
		(iii) State the functions block "A" and "B". Series Interlock Thermal Protector A A A A A A A A A A A A A	
	c)	Describe the working of pick-up assembly of CD player with the help of neat sketch.	

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Syllabus:-

Unit	Name of the Unit	Course Outcome
No.		(CO)
1	Audio Fundamentals	CO-425.1
2	Audio Systems	CO-425.2
3	Television Fundamentals and Transmitters	CO-425.3

Q.1	Attempt any FOUR4*2=8Marks	Course Outcome (CO)
a)	Give the classification of loud speaker.	CO-425.1
b)	Write any 4 specification of CD.	CO-425.2
c)	Define the term image continuity.	CO-425.3
d)	Define Frequency and Sensitivity of sound wave.	CO-425.1
e)	List different components used in CD players.	CO-425.2
f)	Write any 4 CCIR-B standards.	CO-425.3
Q.2	Attempt any THREE3*4=12 Marks	
a)	Compare woofer, tweeter, and squawkers.	CO-425.1
b)	Draw the block diagram of colour TV transmission and explain it.	CO-425.3
c)	Draw the block diagram of CD player and state function of each block.	CO-425.2
d)	With all labels draw colour composite video signal in detail.	CO-425.3

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Syllabus:-

Unit	Name of the Unit	Course Outcome
No.		(CO)
4	Television Receivers	CO-425.4
5	Consumer Electronic Appliances	CO-425.5

Q.1	Attempt any FOUR 4*2=8Marks	Course Outcome (CO)
a)	What is colour killer circuit?	CO-425.4
b)	Write wiring and safety instruction for microwave oven.	CO-425.5
c)	Write the specification of HDTV (any 4)	CO-425.4
d)	Give important specification of washing machine	CO-425.5
e)	Enlist troubleshooting procedure of colour TV	CO-425.4
f)	Write down types of Microwave oven.	CO-425.5
Q.2	Attempt any THREE 3*4=12 Marks	
a)	Draw block diagram of colour TV receiver and explain function of each block.	CO-425.4
b)	Draw block diagram and explain working of photo copier machine	CO-425.5
c)	Write a short note on DTH with block diagram.	CO-425.4
d)	Explain the operating principle of DigiCam	CO-425.5





COURSE: -CONSUMER ELECTRONICS (22425) PROGRAMME: -E&TC

CO.NO	Course Outcome
CO-329.1	Use transistor as low power amplifier.
CO-329.2	Use BJT as high power amplifier.
CO-329.3	Use BJT as feedback amplifier.
CO-329.4	Use BJT as waveform generator.
CO-329.5	Maintain IC voltage regulator and SMPS

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1. Audio Fundamentals

Total Marks-08

Descriptive Questions

- 1. Compare mono and stereo.
- 2. Give the classification of loud speaker.
- 3. Explain the dynamic microphone with neat diagram.
- 4. Describe stereophony and monophony.
- 5. Compare stereophonic and monophonic amplifier.
- 6. Classify loudspeakers on basis o frequency and explain any one in detail.
- 7. State and explain various characteristics of microphone.
- 8. Compare woofer, squawker and tweeter.
- 9. Compare different types of microphones.
- 10.Define amplitude, period, frequency and sensitivity of sound wave.
- 11. Classify the microphone and explain carbon microphone in detail.
- 12. Explain working principle of crystal microphone.
- 13. Write a short note on moving coil loud speakers.
- 14.Compare woofer, tweeter, and squawkers.
- 15.Write a short note on horn type loud speaker.

MCQ Questions

(Total number of Question=Marks*3=08*3=24)

Note: Correct answer is marked with **bold.**

- 1. Which part of the human ear is divided by the basilar membrane?
 - a) Ear drum c) **Cochlea**
 - b) Helicontrema d) Eustachian tube
- 2. Elastomeric foam used as a sound absorber is made of _____
 - a) Non-porous material c) Perforated material
 - b) Porous material
- 3. The resonant frequency of a mass-spring system depends upon _____
 - a) Stiffness c) depth of air space
 - b) surface density d) all of the above
- 4. What happens when sound waves impinge on fiber boards?
 - a) Sound energy is converted into vibration energy

d) Resonator

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	b) Sound energy is converted into heat er	nergy
	c) Sound energy is converted into mechanic	cal energy
	d) All of the above	
5.	Digital audio is	
	a) Continuous in time	c) Singular in time
	b) Discrete in time	d) A waste of time
6.	Sound wave propagates in	
	a) Longitudinal manner	c) Electromagnetic way
	b) Transverse manner	d) None of the above
7.	The maximum displacement of vibrating	g particle from mean position is
	a) Level	c) Period
	b) Amplitude	d) Frequency
8.	In the following which is not characteristics	of sound.
	a) Level	c) Selectivity
	b) Fidelity	d) None of the above
9.	In monophonic amplifier how many number	r of audio channel are used.
	a) Two	c) Four
	b) Three	d) One
10	.In monophonic amplifier, the microphones	used are
	a) Two	c) One
	b) Three	d) Four
11	.In stereophonic amplifier how many numbe	r of audio channels are used.
	a) One	c) Three
	b) Two	d) Four
12	.In stereophonic amplifier, the microphones	used are
	a) Two	c) One
	b) Three	d) Four
13	.The sensitivity of carbon microphone is	·
	a) Very low	c) Moderate
	b) High	d) Cannot say
14	.The ability of human ear to detect weakest s	ound is defined as
	a) Sensitivity	c) Pitch
	b) Period	d) Frequency
15	.Cross over networks of speakers uses	components at inputs.
	a) Amplifier	c) Regulator
	b) Attenuator	d) Filters

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16. The ability of human ear to select of particular frequency is		
a) Selectivity	c) Pitch	
b) Period	d) Frequency	
17. The audible frequency is from to		
a) 10 Hz , 2 KHz	c) 16 Hz, 20 KHz	
b) 20 Hz, 100 KHz	d) 100 Hz, 16 KHz	
18. The ability of an audio amplifier to reprod	uce all sound frequency faithfully is	
defined as		
a) Level	c) Period	
b) Fidelity	d) Frequency	
19.Telephonic speech range is		
a) 300 to 3400 Hz	c) 40 to 15000 Hz	
b) 80 to 8000 Hz	d) 20 to 20000 Hz	
20.The sound appears to be natural s	sound.	
a) Monophonic	c) Quantophonic	
b) Stereophonic	d) None of above	
21. The graph of microphone output versus angle	e is	
a) Impedance	c) Directivity	
b) Signal to Noise	d) Distortion	
22.Out of following which microphone uses car	bon granules?	
a) Ceramic	c) Condenser	
b) Carbon	d) Ribbon	
23.Out of following which microphone uses qua	urtz crystal?	
a) Ceramic	c) Crystal	
b) Carbon	d) Ribbo	
24.Out of following which microphone uses cha	nge in capacitance principle?	
a) Ceramic	c) Condenser	
b) Carbon	d) Ribbon	
25.Crystal microphone has output impedance of	·	
a) 50 Ω	c) 50 KΩ	
b) 100 Ω	d) 100 KΩ	
26.Dynamic microphone has output impedance	of	
a) 50 Ω	c) 50 KΩ	
b) 100 Ω	d) 100 KΩ	
27.Condenser microphone has output impedance	e of	
a) 50 Ω	c) 50 KΩ	
b) 100 MΩ	d) 100 KΩ	

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28. The directivity pattern of crystal microphone	e is	
a) Bidirectional	c) Hyper cardioid	
b) Omni directional	d) Super cardioid	
29. The directivity pattern of carbon microphone	e is	
a) Bidirectional	c) Hyper cardioid	
b) Omni directional	d) Super cardioid	
30. The directivity pattern of crystal microphone	e is	
a) Bidirectional	c) Hyper cardioid	
b) Omni directional	d) Super cardioid	
31. The directivity pattern of condenser microph	none is	
a) Bidirectional	c) Hyper cardioid	
b) Omni directional	d) Super cardioid	
32.Cordless microphone uses frequencie	s for transmission.	
a) Ultraviolet	c) Radio	
b) Infrared	d) Light	
33. Frequency range of which microphone is lar	gest?	
a) Ceramic	c) Condenser	
b) Carbon	d) Ribbon	
34.Sensitivity of which microphone is highest?		
a) Ceramic	c) Condenser	
b) Moving coil	d) Ribbon	
35.Effect of temperature and humidity do not ta	ikes place on microphone.	
a) Ceramic	c) Condenser	
b) Carbon	d) Ribbon	
36.Frequency response of moving coil loudspea	aker is	
a) 10 Hz , 2 KHz	c) 20 Hz, 5 KHz	
b) 20 Hz, 100 KHz	d) 100 Hz, 16 KHz	
37.Frequency response of electrostatic loudspea	aker is	
a) 10 Hz , 2 KHz	c) 20 Hz, 5 KHz	
b) 20 Hz, 10 KHz	d) 100 Hz, 16 KHz	
38.Signal to noise ration of cone type of loudsp	eaker is	
a) 30 DB	c) 50 DB	
b) 40 DB	d) 60 DB	
39.Efficiency of which loudspeaker is largest?		
a) Cone type	c) Electrostatic	
b) Horn Type	d) Moving Coil type	
40. Output impedance of horn type of loudspeak	ter is	

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a) 16 Ω	c) 50 Ω
b) 32 Ω	d) 200 Ω
41.Output impedance of cone type of I	oudspeaker is
a) 16 Ω	c) 50 Ω
b) 32 Ω	d) 200 Ω
42.Output impedance of electrostatic t	ype of loudspeaker is
a) 16 Ω	c) 50 Ω
b) 32 Ω	d) 200 Ω
43. Power handling of loudspeaker is 1	argest?
a) Cone type	c) Electrostatic
b) Horn Type	d) Moving Coil type

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2. Audio Systems

Total Marks-12

Descriptive Questions

- 1. Write any 8 specification of CD.
- 2. Draw the block diagram of CD players and state function of each block.
- 3. Explain working of CD pick up assembly in CD players.
- 4. List different components used in CD players and state the function.
- 5. State function of various drive motors in CD player.
- 6. What is HIFI system? And explain its working.
- 7. Explain the function of HIFI amplifier controls.
- 8. Draw the diagram of graphic equalizer and explain it.
- 9. Draw the block diagram of public address system and explain its working.
- 10.Explain the cross over network.
- 11.Enlist trouble shooting procedure of any audio system
- 12. With neat diagram explain working of MP3 player.
- 13.Draw the front panel of CD player and explain its function.

MCQ Questions

(Total number of Question=Marks*3=12*3=36)

Note: Correct answer is marked with **bold.**

1.	The technology used in optical disks is	·	
	a) Reflective	c)	Laser Beam
	b) Refractive	d)	Diffraction
2.	Rotation of the disk must vary	with	the radius of the disk.
	a) directly	c)	concurrently
	b) inversely	d)	accordingly
3.	Component used to read data from CD is		
	a) Optical Pickup Assembly	c)	Motors
	b) Lenses	d)	Tray
4.	Out of the following, which is not any lens	used	in CD player.
	a) Concave	c)	Objective
	b) Contrast	d)	Cylindrical
5.	Various parameters of audio signal in Hi-Fi	amp	lifier is controlled by
	a) Pre Amplifier	b)	Equalizer
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c) Power Amplifier	d) Matching Network			
6. Out of following which control on Hi-	Fi amplifier converts stereo phony into			
mono phony?	r i i i i i i i i i i i i i i i i i i i			
a) Balance control	c) Master gain control			
b) Loudness control	d) Blend control			
7. audio device boost and attenu	ate the audio signal as per octave bands.			
a) Graphic Equalizer	c) Public Address system			
b) Hi-Fi amplifier	d) MP3 player			
8. To address large gathering of people	is used.			
a) Hi-Fi amplifier	c) Public Address system			
b) Graphic Equalizer	d) MP3 player			
9. A disk consists of a circul	ar disk, which is coated with a thin metal			
or some other material that is highly refle	ctive.			
a) magnetic	c) compact			
b) optical	d) hard			
10.Diameter of compact disk is				
a) 10 cm	c) 15 cm			
b) 12 cm	d) 20 cm			
11.Direction of rotation of compact disk whi	le reading data is			
a) Anticlockwise	c) One rotation in both sides			
b) Clockwise	d) Two rotations in both sides			
12.Sampling frequency of audio in CD writin	ng is			
a) 12 KHz	c) 44.1 KHz			
b) 25 KHz	d) 50 KHz			
13. The transducer used to detect light rays fr	om CD surface is			
a) LED	c) Photodiode			
b) Array	d) Temperature sensor			
14 is the distance between two	tracks of compact disk.			
a) 10 Micron	c) 3 Micron			
b) 5 Micron	d) 1.6 Micron			
15.In CD player is used to keep t	rack of data reading.			
a) Optical pick up assembly	c) DAC			
b) Tracking and focus servo	d) Spindle motor			
system				
16 colour laser is used to read data	a from DVD.			
a) Red	c) Blue			
b) Infrared	d) Ultra violet			

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17.To make CD in and out of CD player	system is used.
a) CD lens	c) Pick up assembly
b) Drive motors	d) Gear system
18. To match impedance of Hi-Fi amplifier circ	cuit and loudspeaker is used.
a) Pre Amplifier	c) Power Amplifier
b) Equalizer	d) Matching Network
19.To transmit sound larger distance	_ is used in public address system.
a) Voltage amplifier	c) Equalizer
b) Power amplifier	d) Mixer
20.First step in troubleshooting of any audio d	evice is to
a) Make physical inspection	c) Repair
b) Test power supply	d) Analyze user's report
21.Dolby NR system is used in	
a) Tape recorder	c) MP3 Player
b) CD player	d) DVD player
22. Type of filter used in graphic equalizer is _	
a) Low pass filter	c) High pass filter
b) Mid pass filter	d) Band pass filter
23.Equalization is used to compensate	
a) Peak signal to noise ratio	c) Channel fading
b) Intersymbol interference	d) Noises present in the signal
24. The most commonly used microphone for p	public address systems is
a) Carbon	c) Moving coil
b) Crystal	d) Condenser
25. The delay occurred during playback of a str	ream is called
a) Stream delay	c) Jitter
b) Playback delay	d) Event delay
26.MP3 is in which of the following MPEG st	andards?
a) MPEG1	c) MPEG3
b) MPEG2	d) MPEG21
27.Rich text is known as	
a) Un-formatted text	c) Hypertext
b) Formatted text	d) None of these
28. With reference to multimedia elements, pic	k the odd-one out of the following:
a) Voice Script	c) Audio
b) Animation	d) Video
29.Two parts of Morphing algorithms are:	

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a)	Warp & Tweening	c)	Wrap & Dissolv	ve	
b)	Tweening & Wrap	d)	Tweening	&	Dissolve
30.Hu	uffman encoding is a encoding	g teo	chniques.		
a)	Suffix	c)	Both (a) and (b))	
b)	Prefix	d)	None of these.		
31.M	PEG stands for				
a)	Motion Picture Express Group	c)	Motion Picture	Export (Group
b)	Motion Picture Expert Group	d)	None of these.		
32. M	IP3 player plays				
a)	Text	c)	Video		
b)	Audio	d)	Animation		
33.W	hich of the following is not the attribute for	: <a< td=""><td>udio> element?</td><td></td><td></td></a<>	udio> element?		
a)	Controls	c)	Preload		
b)	Src	d)	Width		
34. Which element is used for inserting more than one audio file?					
a)	<source/>	c)	<command/>		
b)	<src></src>	d)	<ins></ins>		
35.W	hat is the work of src file?				
a)	Audio starts playing automatically				
b)	Play again after finishing the audio				
c)	Specify the path to an audio file				
d)	Insert more than one audio				
36.W	hich browser does not support MP4 H.264	for	mat?		
a)	Opera	c)	Safari		
b)	Chrome	d)	Internet Explore	er	



3. Television Fundamentals and

Transmitters

Total Marks-16

Descriptive Questions

- 1. Draw the Block diagram of mono chrome TV and describe it operation.
- 2. Define aspect ratio and resolution with respect to TV.
- 3. Define the term image continuity.
- 4. Define Vertical resolution and horizontal resolution.
- 5. State the type scanning technique and explain interlaced scanning.
- 6. Draw colour composite video signal in detail.
- 7. Write any 8 CCIR-B standards.
- 8. Define following terms with respect top composite video signal.1. Front Porche 2.Back Porch.
- 9. List any two merits and demerits of negative modulation
- 10.Explain why Vestigial Side Band Transmission used in TV
- 11.Explain additive mixing of colour TV.
- 12. State and explain Grassman's Law for subtractive mixing
- 13.Define luminance, Hue, Saturation and Contrast.
- 14.Explain the concept of frequency of interleaving.
- 15.List the frequency of TV channel Allocation.
- 16.Draw the block diagram of colour TV transmission and explain it.

MCQ Questions

(Total number of Question=Marks*3=16*3=48)

Note: Correct answer is marked with **bold**.

- 1. The main purpose of interlacing in television scanning is to ______.
 - a) reduce flicker c) sharpen picture outline
 - d) increase channel bandwidth b) brighten the TV picture
- 2. If a TV picture has 625 lines and scanning rate is 25 pictures/second, time for scanning one line is second.
 - a) 42 Micro sec c) 60 Micro sec
 - d) 64 Micro sec b) 54 Micro sec
- 3. The function of a sync separator in TV set is to separate the signals ______

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a) video and sound	c) line sync and field sync		
b) video and line sync	d) sound and field sync		
4. The number of lines per field & frequency i	n the PAL TV system is		
a) 525,60HZ	c) 819,60Hz		
b) 625,50Hz	d) None of above		
5. Aspect ratio in Standard Definition TV is			
a) 5:9	c) 4:3		
b) 16:9	d) 5:4		
6. Aspect ratio in High Definition TV is	·		
a) 5:9	c) 4:3		
b) 16:9	d) 5:4		
7. The best viewing distance to watch TV is	·		
a) 2 x Width of TV screen	c) 8 x Width of TV screen		
b) 4 x Width of TV screen	d) 15 x Width of TV screen		
8. Interlace Scanning always takes place in dir	ection of		
a) Left to right, top to bottom	c) Right to left, top to bottom		
b) Left to right, bottom to top	d) None of above		
9. Basic Working Principle of Television is	·		
a) Persistent of vision	c) Image transmission		
b) Audio Video Transmission	d) Both a& c		
10. The line frequency in interlace scanning is _	·		
a) 12125 Hz	c) 15625 Hz		
b) 13525 Hz	d) 30250 Hz		
11. The line frequency in progressive scanning	is		
a) 12125 Hz	c) 15625 Hz		
b) 13525 Hz	d) 31250 Hz		
12. The vertical resolution of television set depe	ends upon		
a) No of horizontal lines on TV	c) No of scanning fields		
b) Kell Factor	d) All of above		
13. The primary colours in colour theory of tele	vision are		
a) Red, Green	c) Blue, Green		
b) Red, Blue	d) Red, Green, Blue		
14. The secondary colours in colour theory of te	elevision are		
a) Cyan, Magenta	c) Blue, Green		
b) Cyan, Magenta, Yellow	d) Red, Green, Blue		
15. The minimum refresh rate to avoid flicker for all motion devices is			
a) 30Hz	b) 40Hz		

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c) 50H	Z		d)) 70 Hz	
16. A vide	o consists of a seque	ence of	·	-•	
a) Fra	nes		c)	Packets	
b) Sign	als		d)) Slots	
17.If fram	es are displayed	on screen	fast eno	ough, we get an impression of	f
a) Sign	als		c)	Packets	
b) Mot	ions		d)	Bits	
18. How n	any types of video	compression	s?		
a) 2			c)	4	
b) 3			d)	0 6	
19. BMP f	ormat uses which of	the following	ng algorit	thms	
a) Huf	man		c)	Neither (a) and (b)	
b) Run	length algorithm		d)) Both (a) and (b)	
20. In Gray	scale colour mode	, we get	•••••	number of different colour.	
a) 2^{24}			c)	2 ¹⁶	
b) 2 ⁸			d)	2^{2}	
21.Out of t	ollowing, Which in	hage files is a	a lossy fo	ormat?	
a) GIF	В.		c)	JPEG	
b) MPI	EGC		d)) PNG	
22.Expand	JPEG.				
a) Join	t Photo Experts G	roup			
b) Join	t Photographic Expe	erts Group			
c) Join	t Processor Experts	Group			
d) Join	t Photographic Expr	ession Grou	р		
23.GIF me	ans:		,		
a) Graj	hic Information Fil	e	c)	Graphic Information Format	
b) Gra	phic Interchange F	ormat	d)) Graphic Interchange File	
24. What d	bes AVI format stan	d for?	,		
a) Aud	to for voice on inter	net	c)	Audio video interleaved	
b) Aud	10 voice interleaved	C'1	d)	Adapted video for internet	
25.MP3 1s	an extension of a	file	.		
a) Vide	o file		c)		
b) Graj	shics image	. 1 •	d)	Text File	
26. The Ele	ctrodes in a cathode	e-ray tube 1s	used to _	Electrons	
a) Defl	ect		c)	Accelerate	
b) Proc	uce		d)	Stimulate	

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27. The process of scanning is used in television	to _	
a) Convert image pixel in signal	c)	To divide image in 2 fields
b) To increase field frequency	d)	All of above
e)		
28.In TV transmission, Picture & sound signal is	s	modulated.
a) Frequency & Amplitude	c)	Phase & Pulse
b) Amplitude & Frequency	d)	N one of the above
29.To have perfect retrace in the receiver		Signal is used
a) Sync	c)	Luminance
b) Chroma	d)	Blanking
30. Vidicon is based on principal.		
a) Photo conductive	c)	Photo transmission
b) Photo emission	d)	Both of above
31.For the standard intermediate frequencies for	the	625-B system what is picture IF?
a) 38.9 MHz	c)	34.3 MHz
b) 33.4 MHz	d)	43.9MHz
32.In DBS ,the channel which forwards data fr	om	Transponder of satellite to earth
station to satellite is known as		
a) Uplink	c)	Transponder frequency
b) Downlink	d)	None of above
33.Scanning line in HDTV & frequency		
a) 1125,50Hz	c)	819.60Hz
b) 625,50Hz	d)	None of above
34.WDTV is used		
a) In Cinema	c)	Photography
b) Closed Circuit	d)	Geo channels
35.The LED has		
a) Smaller size, True black experience		
b) Low Power consumption, Expensive		
c) Low Image reflection		
d) Both a&b		
36 is used for backlight		
a) LED	c)	Plasma
b) LCD	d)	Flat screen
37. This is true for Colour TV		
a) Chroma amplifier is off	c)	Picture tube is off
b) Chroma amplifier is on	d)	Delay line



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38 is a convenient space coordinat	e representation of all the spectral.
a) Chromaticity diagram	c) Subtractive mixing diagram
b) additive mixing diagram	d) colours and their mixtures
39.Sync Pulse is transmitted in the	
a) Back porch	c) Audio Signal
b) Front porch	d) Video Signal
40.Subtractive Mixing is	
a) Subtraction of colours	
b) Common wavelength is reflected	
c) Common wavelength is refracted	
d) Addition of contrast coulrs	
41.In PAL color subcarrier is	
a) 4.43 MHz	c) 2.25MHz
b) 3.57MHz	d) 1.15MHz
42. Vertical resolution of PAL TV set is	
a) 395	c) 425
b) 410	d) 450
43. Trace and retrace period of interlace scanning	g is
a) 10 usec, 50 usec	c) 62 usec, 10 usec
b) 52 usec, 12 usec	d) 68 usec, 10 usec
44. Video bandwidth of TV channel in Pal system	n is
a) 3 MHz	c) 7 MHz
b) 5 MHz	d) 10 MHz
45.In negative modulation of CCVS signal Bl	lack level is, white level is
a) 70%, 10 %	c) 40 %, 25 %
b) 50%, 20%	d) 20%, 60 %
46. The amount of light intensity received by hur	nan eye is called as
a) Hue	c) Brightness
b) Saturation	d) Colour
47.Predominant spectral purity of coloured light	is called as
a) Hue	c) Brightness
b) Saturation	d) Colour
48.In frequency interleaving of video colour	signal subcarrier is transmitted at
a) 3.34 MHz	c) 4.21 MHz
b) 3.56 MHz	d) 4.43 MHz

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49.In PAL system the colour information is transmitted as ______ signals.

- a) I, Q
- **b**) **U**, **V** d) X, Z

50.In colour TV transmission ______ block generates the colour information.

- a) Duplexer
- b) Power amplifier

- c) Sound modulator
- d) PAL-D encoder

c) I, J

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4. Television Receivers

Total Marks-14

Descriptive Questions

- 1. Draw block diagram of T.V receiver and explain each block.
- 2. Draw block diagram of T.V receiver and explain each block.
- 3. Explain the necessity of AGC amplifier.
- 4. Explain how U and V signal are separated from chroma signal
- 5. Explain working of Pal Decoder.
- 6. What is colour killer circuit and explain its working.
- 7. What is need of EHT and explain how its generated.
- 8. Compare SDTV, HDTV and EDTV.
- 9. Write the specification of HDTV.
- 10.Describe NHK, MUSE system for HDTV.
- 11.Explain working principle of LCD TV with appropriate diagram.
- 12.Explain working principle of LEDTV with neat diagram.
- 13.Write a short note on DTH with block diagram.
- 14.Enlist troubleshooting procedure of colour TV.

MCQ Questions

(Total number of Question=Marks*3=14*3=42)

Note: Correct answer is marked with **bold**.

- 1. CCTV is a ______ application.
 - a) Limited room c) Wide area
 - b) Limited area d) Can't say
- 2. Which of the following is the first component of any MATV system to receive broadcast signals?

c) RF amplifier

d) Antenna

- a) Filter
- b) LNA
- 3. Is the most common technique where apartment house, hotels, schools, condominiums, and multi-unit buildings distribute TV and FM signals to a number of receivers, using a single head-end.
 - a) **CCTV** c) MATV
 - b) CATV d) Antenna
- 4. TV channel 2, 4 and 5 belong to

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a) Low band UHF	c) Mid band UHF			
b) High band VHF	d) Low band VHF			
5. Which of the following is a solid state imagin	ng device?			
a) VIDICON	c) Charge couple device			
b) ICONOSCOPE	d) CCTV			
6. What class of TV camera lens used to cover	long distances?			
a) Normal	c) Telephoto			
b) Wide angle	d) Zoom			
7. The aspect ratio HDTV is				
a) 4:3	c) 14:8			
b) 18:5	d) 16:9			
8. Program interruption for the airing of comm	ercial outside Metro Manila shall not			
exceed breaks in every program hour				
a) 5	c) 7			
b) 6	d) 8			
9. For Metro manila, the classification of prime	time blocks for FM shall be			
a) 6:00 AM to 8:00 PM	c) 6:00 AM to 6:00 PM			
b) 6:00 AM to 12:00 NN	d) 12:00 NN to 12:00 MN			
10 is the time circulation for one horizontal trace.				
a) 52 us	c) 48 us			
b) 62 us	d) 50 us			
11. Television has a lot of features in common w	ith			
a) FM stereo	c) Motion picture			
b) Telephone service	d) Magazine			
12. The major component of the TV signal wave	form is the			
a) Video	c) Stereo			
b) Radar	d) Antenna			
13.For NTSC TV system, the image is scanned if	from			
a) Top to bottom	c) Right to left			
b) Left to right	d) Choices a and b above			
14. The pulses riding on the vertical blanking pulse				
a) Equalizing (sync) pulses	c) Black level pulses			
b) Serrated vertical sync pulses	d) Choices a and b above			
15.Television camera pickup tube is called				
a) Vidicon	c) Plumbicon			
b) Image orthicon	d) All of the above			
16. The television picture tube magnetic fields ca	an be used for			

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KSWITOLI Anniated to MSBTE Mullibal, Approved by AICTE	New Denn, DTE Munibal & Govt. Of Manalashtra, Munibal
a) Beam focusing	c) Beam production
b) Beam deflection	d) Beam modulation
17.Video modulation for television is	
a) Amplitude modulation	
b) Frequency modulation	
c) Vestigial sideband	
d) Both amplitude modulation and vesti	gial sideband
18.Audio modulation for television is	
a) Amplitude modulation	
b) Frequency modulation	
c) Vestigial sideband	
d) Both amplitude modulation and vestigia	al sideband
19. The video carrier and the audio carrier are	separated by MHz.
a) 4.5	c) 6.5
b) 5.5	d) 7.5
20.Brightness of an image is known as	
a) Radiance	c) Reflectance
b) Chrominance	d) Luminance
21. What is the impedance at the antenna input	terminals of a TV receiver?
a) 300 ohms	c) 50 ohms
b) 150 ohms	d) 100 ohms
22. The signal might a video amplifier amplify	?
a) Aural IF	c) Blanking
b) Video	d) Any of these
23. When coupling from a sync separator, w	hat is used to obtain the vertical sync
pulses?	
a) Integrator	c) Differentiator
b) Corrector	d) Separator
24.For the luminance signal, what is the letter	symbol?
a) R	c) I
b) Q	d) Y
25. The number of frames per second in the PA	AL TV system is
a) 60	c) 25
b) 262 ¹ ⁄ ₂	d) 30
26.Interlacing is used in television to	
a) produce the illusion of motion	
b) ensure that all the lines on the screen are	e scanned, not merely the alternate ones

Maratha Vidya Prasarak Samaj's Rajarshi Shahu Maharaj Polytechnic, Nashik Udoji Maratha Boarding Campus, Near Pumping Station, Gangapur Road, Nashik-13. RSM POLY Affiliated to MSBTE Mumbai, Approved by AICTE New Delhi, DTE Mumbai & Govt. of Maharashtra, Mumbai. c) simplify the vertical sync pulse train d) avoid flicker 27. The signals sent by the TV transmitter to ensure correct scanning in the receiver are called _____. a) Sync c) Luminance b) Chroma d) Video 28.In television, 4:3 represents the _____. a) interlace ratio c) aspect ratio d) ratio of the two diagonals b) maximum horizontal deflection 29.Equalizing pulses in TV are sent during _____. a) horizontal blanking c) the serrations b) vertical blanking d) the horizontal retrace 30. The video voltage applied to the picture tube of a television receiver is fed in a) between grid and ground c) to the anode b) to the yoke d) between grid and cathode 31. The circuit that separates sync pulses from the composite video waveform is a) the keyed AGC amplifier c) an integrator d) a differentiator b) a clipper 32. The output of the vertical amplifier, applied to the yoke in a TV receiver, consists of . a) direct current c) a sawtooth voltage b) amplified vertical sync d) a sawtooth current 33.In a TV receiver, the color killer _____ a) cuts off the chroma stages during monochrome reception b) ensures that no color is transmitted to monochrome receivers c) prevents color overloading d) makes sure that the color burst is not mistaken for sync pulses, by cutting off reception during the back porch 34. The smallest are of light or shade in the image is a picture element called a) Chroma c) Contrast b) Hue d) Pixel 35.Light is converted to video signal by the _____ tube. a) Camera tube c) Anode tube b) Picture tube d) Cathode tube 36. The gain of video signal is automatically controlled by _____.

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5. Consumer Electronic

Appliances

Total Marks-20

Descriptive Questions

- 1. Draw block diagram and explain working of photo copier machine.
- 2. Explain principle of microwave oven.
- 3. Explain the wiring and safety instruction for microwave oven.
- 4. Draw and explain operation of washing machine.
- 5. Give important specification of washing machine.
- 6. Explain the operating principle of Digi Cam.
- 7. Compare CCD and CMOS sensor.
- 8. Give the important specification of cam corder.

MCQ Questions

(Total number of Question=Marks*3=20*3=60)

Note: Correct answer is marked with **bold.**

- 1. The first photocopier machine was patented by _____.
 - a) Sir Louis Pasteur c) Sir Frances Gabe
 - b) Sir Chester Carlson d) Sir George Beers
- 2. What type of printer is most likely to use a continuous form feeder?
 - a) Laser printer c) Dot-matrix
 - b) Inkjet d) USB
- 3. What is another name for a laser printer?
 - a) **Photoelectric printer** c) CYMK printer
 - b) Page printer d) Platen driver
- 4. Which of the following devices gives the paper a positive charge?
 - a) The laser c) The registration rollers
 - b) The print drum d) The transfer corona wire
- 5. Why is the print drum given a negative charge?
 - a) To attract the toner to every area of the drum
 - b) To attract the toner to the areas of the drum that have a stronger negative charge

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c) To attract the toner to the areas of the drum that have a weaker negative charge

- d) To attract the positively charged paper to the print drum
- 6. Why are both the developer drum and the print drum charged with -600Vdc?
 - a) So the paper is attracted to neither
 - b) So the toner is attracted to neither
 - c) So the toner creates a fusion cloud between the two rollers and the paper

d) So the toner is attracted only to weakly charged areas of the print drum

- 7. At what voltage is the paper charged?
 - a) +600Vdc c) -100Vdc
 - b) -600Vdc d) +100Vdc

8. What prevents the paper from rolling into the print assembly with the print drum?

- a) The registration rollers
- b) The static eliminator strip
- c) The fuser
- d) The electrical charge on the paper and the print drum
- 9. What is the fuser roller coated with?
 - a) **Teflon** c) Ink
 - b) Aluminum d) Rubber

10.What device removes unused toner from the print drum?

- a) **Transfer corona wire** c) Laser
- b) Static eliminator strip d) Cleaning blade
- 11. What best describes how an inkjet printer prints an image?
 - a) One dot at a time to form a character
 - b) Spray-painting a character
 - c) Striking an inked ribbon
 - d) Dropping ink onto the paper

12. What causes the ink to vaporize in an inkjet printer?

a) Electrical pulses

b) A heating element within the ink cartridge

- c) A solenoid in each chamber of the ink cartridge
- d) Drying of the ink when the cartridge has not been used for some time
- 13. What type of paper-feed mechanisms do dot-matrix printers use?
 - a) **Continuous form feed** c) Friction continuous form feed
 - b) Friction feed d) Inverted gravity feed

14.Screen printing utilizes a ______ to control the location of the ink.

a) Layer

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b) Mask



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23.Statement 1: Microwave heating helps save electricity.

Statement 2: The quality of product in microwave heating is good hence rejections are lesser.

a) True, False

c) False, False

b) True, True

d) False, True

d) False, True

24.Although microwave heating can be used for drying of food containing uneven water content, it is isn't done for certain food products like garlic. Why?

- a) No pasteurization
- b) Essential oils being stripped off
- c) None of the mentioned

d) No pasteurization & Essential oils being stripped off

25. Microwave heating is good for puffed products. Why?

- a) The rate of heat transfer is less than the rate of moisture loss
- b) The heat transfer in these food items takes place so fast that instead of shrinking of the food items due to loss of moisture content, they stay intact and hence puffed
- c) None of the mentioned
- d) All of the mentioned

26. Which of the following is NOT a part of the microwave heating system?

- a) Magnetron c) Cathode
- b) Anode d) None of the mentioned

27.Statement 1: The heat transfer co-efficient in ice is four times that of water. Statement 2: k in conductance is for thermal conductivity.

- a) True, False c) False, False
- b) True, True
- 28._____ is the progressive decrease of signal strength with increasing distance.
 - a) **Radiation** c) Modulation
 - b) Attenuation d) Propagation
- 29.In which one of the following year washing machines was invented?
 - a) 1925 c) 1901
 - b) 1945 d) **1908**
- 30. Washing machine was introduced by _____
 - a) Sir Frank Whittle c) Sir Alva J. Fisher
- b) Sir Hans von Ohain d) Sir Otto Blathy
- 31. Washing machine was invented in _____.
 - a) Denmark b) Chicago

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42. Which of the following material is used t	o mac	de heating element of electric
toaster?		
a) Tungsten.	c) Ir	on.
b) Platinum.	d) N	ichrome.
43. The heating element in an electric iron is would	nd are	ound a sheet of
a) mica.	c) cc	otton.
b) cardboard.	d) po	orcelain.
44. The rating all electric iron is expressed in		
a) watt.	c) kV	Wh.
b) kVA.	d) H	P.
45. The capacity an air conditioner is expressed i	1	
a) watt.	c) kV	Wh.
b) HP.	d) to	ons.
46. The capacity of a domestic refrigerator is exp	ressed	1 in
a) watt.	c) w	att-hours.
b) HP.	d) to	ons.
47.Which one of the following invented the first	self-c	contained Digital Camera?
a) Sir Josip Belusic	c) Si	ir Igory Sikorsky
b) Sir Thomas Edison	d) Si	ir Steven Sasson
48. The first self-contained digital camera was in	vented	d in
a) 1975	c) 19	999
b) 1989	d) 19	956
49. Which control changes the volume of light entering the camera?		
a) Shutter	c) IS	SO
b) Aperture	d) Fo	ocus
50.If your metered exposure was 1/125 and	f8, w	which would be an equivalent
exposure?		
a) 1/500 and f16	c) 1/	/30 and f11
b) 1/60 and f16	d) 1/	/500 and f4
51. What do we call a lens with a focal length lor	ger th	nan the standard?
a) Telephoto	c) W	Vide Angle
b) Zoom	d) M	lacro
52. Which aperture gives greater depth of field?		
a) F22	c) F2	20
b) F21	d) F1	19
53. Which of the following is a factor in depth of	field?	?
a) Aperture	b) Sl	hutter speed

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c) Focusing distance	d) Focal length
54.Resolution of HD camcorder is	
a) 256x256	c) 1216x912
b) 640x480	d) 1600x1200
55.Out of following which is not major	component of digital camcorders
a) Lens system	c) Image sensor
b) Motor	d) Recorder
56. The file format of digital camera is	
a) .wav	c) .jpeg
b) .exe	d) .rar
57. The file format of digital camcorder is	
a) .wav	c) .jpeg
b) .mp4	d) .rar
58.A small camera, the kind that can fit in your	pocket
a) Disposable	c) Point and shoot
b) DSLR	d) DSSR
59.Larger more expensive cameras which have	a body which you can attach different
lenses to, used by professionals and hobbyist	
a) Disposable	c) Point and shoot
b) DSLR	d) DSSR
60.Electronic flash memory data storage device	used for storing digital information.
a) Flash card	c) Flash drive
b) Tripod	d) Memory card