



Maratha Vidya Prasarak Samaj's

Rajarshi Shahu Maharaj Polytechnic, Nashik

Udoji Maratha Boarding Campus, Near Pumping Station, Gangapur Road, Nashik-13.

Affiliated to MSBTE Mumbai, Approved by AICTE New Delhi, DTE Mumbai & Govt. of Maharashtra, Mumbai.

Subject: - Consumer Electronics
(22425)



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SYLLABUS

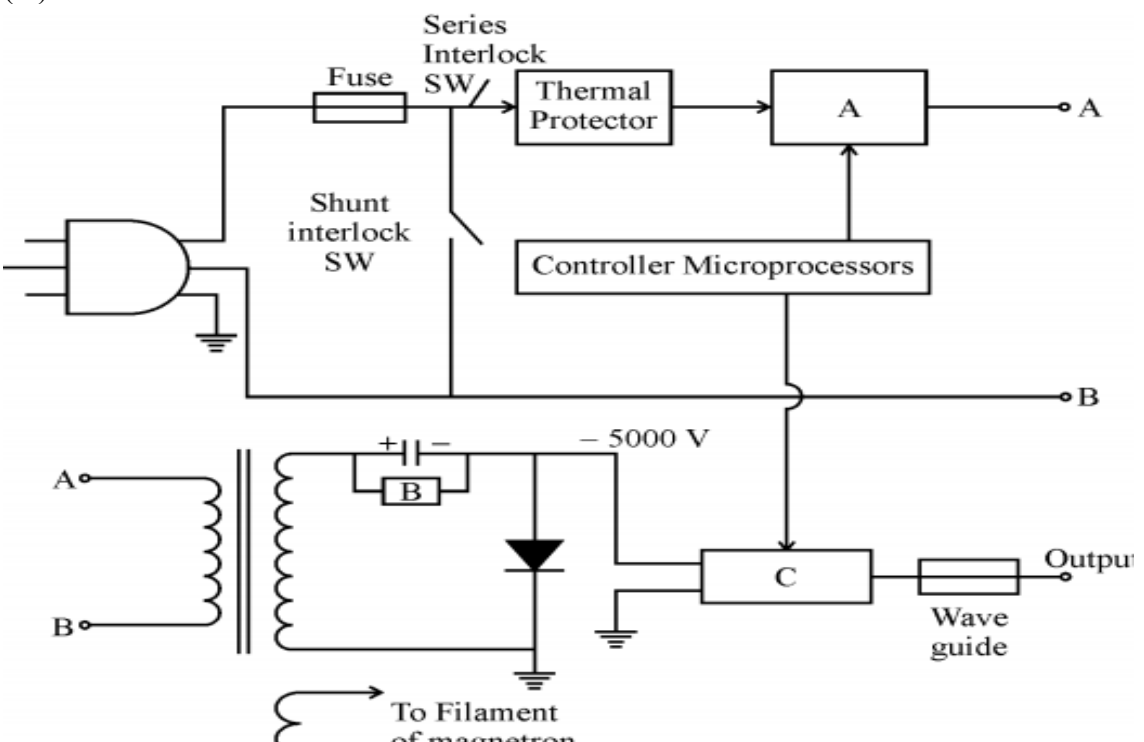
Chapter No.	Name of chapter	Marks With Option
1	Audio Fundamentals	14
2	Audio Systems	18
3	Television Fundamentals and Transmitters	22
4	Television Receivers	22
5	Consumer Electronic Appliances	24
Total Marks :-		100



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.	

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

CLASS TEST - I

PAPER PATTERN

Syllabus:-

Unit No.	Name of the Unit	Course Outcome (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 FOUR $4*2=8$ Marks	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 THREE $3*4=12$ 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

CLASS TEST - II

PAPER PATTERN

Syllabus:-

Unit No.	Name of the Unit	Course Outcome (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 OUTCOME (CO)

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



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



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



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 reproduce 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 sound.
a) Monophonic c) Quantophonic
b) **Stereophonic** d) None of above
21. The graph of microphone output versus angle is _____.
a) Impedance c) **Directivity**
b) Signal to Noise d) Distortion
22. Out of following which microphone uses carbon granules?
a) Ceramic c) Condenser
b) **Carbon** d) Ribbon
23. Out of following which microphone uses quartz crystal?
a) Ceramic c) **Crystal**
b) Carbon d) Ribbo
24. Out of following which microphone uses change in capacitance principle?
a) Ceramic c) **Condenser**
b) Carbon d) Ribbon
25. Crystal microphone has output impedance of _____.
a) 50 Ω c) 50 K Ω
b) 100 Ω d) **100 K Ω**
26. Dynamic microphone has output impedance of _____.
a) 50 Ω c) 50 K Ω
b) **100 Ω** d) 100 K Ω
27. Condenser microphone has output impedance of _____.
a) 50 Ω c) 50 K Ω
b) **100 M Ω** d) 100 K Ω



28. The directivity pattern of crystal microphone is _____ .
a) Bidirectional
b) Omni directional
c) Hyper cardioid
d) Super cardioid
29. The directivity pattern of carbon microphone is _____ .
a) Bidirectional
b) Omni directional
c) Hyper cardioid
d) Super cardioid
30. The directivity pattern of crystal microphone is _____ .
a) Bidirectional
b) Omni directional
c) Hyper cardioid
d) Super cardioid
31. The directivity pattern of condenser microphone is _____ .
a) Bidirectional
b) Omni directional
c) Hyper cardioid
d) Super cardioid
32. Cordless microphone uses _____ frequencies for transmission.
a) Ultraviolet
b) Infrared
c) Radio
d) Light
33. Frequency range of which microphone is largest?
a) Ceramic
b) Carbon
c) Condenser
d) Ribbon
34. Sensitivity of which microphone is highest?
a) Ceramic
b) Moving coil
c) Condenser
d) Ribbon
35. Effect of temperature and humidity do not take place on _____ microphone.
a) Ceramic
b) Carbon
c) Condenser
d) Ribbon
36. Frequency response of moving coil loudspeaker is _____.
a) 10 Hz , 2 KHz
b) 20 Hz, 100 KHz
c) 20 Hz, 5 KHz
d) 100 Hz, 16 KHz
37. Frequency response of electrostatic loudspeaker is _____.
a) 10 Hz , 2 KHz
b) 20 Hz, 10 KHz
c) 20 Hz, 5 KHz
d) 100 Hz, 16 KHz
38. Signal to noise ratio of cone type of loudspeaker is _____.
a) 30 DB
b) 40 DB
c) 50 DB
d) 60 DB
39. Efficiency of which loudspeaker is largest?
a) Cone type
b) Horn Type
c) Electrostatic
d) Moving Coil type
40. Output impedance of horn type of loudspeaker is _____.



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
b) Refractive
c) **Laser Beam**
d) Diffraction
2. Rotation of the disk must vary _____ with the radius of the disk.
a) directly
b) **inversely**
c) concurrently
d) accordingly
3. Component used to read data from CD is _____.
a) **Optical Pickup Assembly**
b) Lenses
c) Motors
d) Tray
4. Out of the following, which is not any lens used in CD player.
a) Concave
b) **Contrast**
c) Objective
d) Cylindrical
5. Various parameters of audio signal in Hi-Fi amplifier 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?
a) Balance control
b) Loudness control
c) Master gain control
d) Blend control
7. _____ audio device boost and attenuate the audio signal as per octave bands.
a) Graphic Equalizer
b) Hi-Fi amplifier
c) Public Address system
d) MP3 player
8. To address large gathering of people _____ is used.
a) Hi-Fi amplifier
b) Graphic Equalizer
c) Public Address system
d) MP3 player
9. A _____ disk consists of a circular disk, which is coated with a thin metal or some other material that is highly reflective.
a) magnetic
b) **optical**
c) compact
d) hard
10. Diameter of compact disk is _____.
a) 10 cm
b) **12 cm**
c) 15 cm
d) 20 cm
11. Direction of rotation of compact disk while reading data is _____.
a) Anticlockwise
b) Clockwise
c) One rotation in both sides
d) Two rotations in both sides
12. Sampling frequency of audio in CD writing is _____.
a) 12 KHz
b) 25 KHz
c) 44.1 KHz
d) 50 KHz
13. The transducer used to detect light rays from CD surface is _____.
a) LED
b) Array
c) Photodiode
d) Temperature sensor
14. _____ is the distance between two tracks of compact disk.
a) 10 Micron
b) 5 Micron
c) 3 Micron
d) 1.6 Micron
15. In CD player _____ is used to keep track of data reading.
a) Optical pick up assembly
b) **Tracking and focus servo system**
c) DAC
d) Spindle motor
16. _____ colour laser is used to read data from DVD.
a) Red
b) Infrared
c) **Blue**
d) Ultra violet



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



- a) Warp & Tweening
b) Tweening & Wrap
- c) Wrap & Dissolve
d) Tweening & Dissolve
30. Huffman encoding is a encoding techniques.
a) Suffix
b) Prefix
c) Both (a) and (b)
d) None of these.
31. MPEG stands for
a) Motion Picture Express Group
b) Motion Picture Expert Group
c) Motion Picture Export Group
d) None of these.
32. MP3 player plays _____.
a) Text
b) Audio
c) Video
d) Animation
33. Which of the following is not the attribute for <audio> element?
a) Controls
b) Src
c) Preload
d) Width
34. Which element is used for inserting more than one audio file?
a) <source>
b) <src>
c) <command>
d) <ins>
35. What 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. Which browser does not support MP4 H.264 format?
a) **Opera**
b) Chrome
c) Safari
d) Internet Explorer



3. Television Fundamentals and Transmitters

Total Marks-16

Descriptive Questions

1. Draw the Block diagram of mono chrome TV and describe its 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 to composite video signal.
 1. Front Porch
 2. Back Porch.
9. List any two merits and demerits of negative modulation
10. Explain why Vestigial Side Band Transmission is 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 Questions = 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**
 - b) brighten the TV picture
 - c) sharpen picture outline
 - d) increase channel bandwidth
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
 - b) 54 Micro sec
 - c) 60 Micro sec
 - d) **64 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
b) video and line sync
- c) **line sync and field sync**
d) sound and field sync
4. The number of lines per field & frequency in the PAL TV system is _____.
- a) 525,60Hz
b) **625,50Hz**
c) 819,60Hz
d) None of above
5. Aspect ratio in Standard Definition TV is _____ .
- a) 5:9
b) 16:9
c) **4:3**
d) 5:4
6. Aspect ratio in High Definition TV is _____ .
- a) 5:9
b) **16:9**
c) 4:3
d) 5:4
7. The best viewing distance to watch TV is _____.
- a) 2 x Width of TV screen
b) 4 x Width of TV screen
c) **8 x Width of TV screen**
d) 15 x Width of TV screen
8. Interlace Scanning always takes place in direction of _____ .
- a) **Left to right, top to bottom**
b) Left to right, bottom to top
c) Right to left, top to bottom
d) None of above
9. Basic Working Principle of Television is _____.
- a) **Persistent of vision**
b) Audio Video Transmission
c) Image transmission
d) Both a& c
10. The line frequency in interlace scanning is _____ .
- a) 12125 Hz
b) 13525 Hz
c) **15625 Hz**
d) 30250 Hz
11. The line frequency in progressive scanning is _____ .
- a) 12125 Hz
b) 13525 Hz
c) 15625 Hz
d) **31250 Hz**
12. The vertical resolution of television set depends upon _____ .
- a) No of horizontal lines on TV
b) Kell Factor
c) No of scanning fields
d) **All of above**
13. The primary colours in colour theory of television are _____.
- a) Red, Green
b) Red, Blue
c) Blue, Green
d) **Red, Green, Blue**
14. The secondary colours in colour theory of television are _____.
- a) Cyan, Magenta
b) **Cyan, Magenta, Yellow**
c) Blue, Green
d) Red, Green, Blue
15. The minimum refresh rate to avoid flicker for all motion devices is _____.
- a) 30Hz
b) **40Hz**



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



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



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

- | | |
|---------|---------|
| a) I, Q | c) I, J |
| b) U, V | d) X, Z |

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

- | | |
|--------------------|-------------------------|
| a) Duplexer | c) Sound modulator |
| b) Power amplifier | d) PAL-D encoder |

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
 - b) Limited area**
 - c) Wide area
 - d) Can't say
2. Which of the following is the first component of any MATV system to receive broadcast signals?
 - a) Filter
 - b) LNA
 - c) RF amplifier
 - d) Antenna**
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**
 - b) CATV
 - c) MATV
 - d) Antenna
4. TV channel 2, 4 and 5 belong to



- a) Beam focusing
b) Beam deflection
c) Beam production
d) **Beam modulation**
17. Video modulation for television is _____.
- a) Amplitude modulation
b) Frequency modulation
c) Vestigial sideband
d) **Both amplitude modulation and vestigial sideband**
18. Audio modulation for television is _____.
- a) Amplitude modulation
b) **Frequency modulation**
c) Vestigial sideband
d) Both amplitude modulation and vestigial sideband
19. The video carrier and the audio carrier are separated by _____ MHz.
- a) 4.5
b) **5.5**
c) 6.5
d) 7.5
20. Brightness of an image is known as _____.
- a) Radiance
b) Chrominance
c) Reflectance
d) **Luminance**
21. What is the impedance at the antenna input terminals of a TV receiver?
- a) **300 ohms**
b) 150 ohms
c) 50 ohms
d) 100 ohms
22. The signal might a video amplifier amplify?
- a) Aural IF
b) Video
c) Blanking
d) **Any of these**
23. When coupling from a sync separator, what is used to obtain the vertical sync pulses?
- a) **Integrator**
b) Corrector
c) Differentiator
d) Separator
24. For the luminance signal, what is the letter symbol?
- a) R
b) Q
c) I
d) **Y**
25. The number of frames per second in the PAL TV system is _____.
- a) 60
b) 262 ½
c) **25**
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 scanned, not merely the alternate ones



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- a) AFT
b) **AGC**
- c) PAL D decoder
d) Filter
37. The Advantages of HDTV are _____.
- a) Improved colour quality
b) Wide screen viewing
c) include 'smart' features
d) **All the above**
e)
38. The biggest disadvantage of the digital TV is _____.
- a) Resolution is less than analog TV
b) Aspect ratio is less
c) **You will need special equipment like Set top box.**
d) Both A & B
39. In TV transmission, the sound waves are transmitted by _____.
- a) Phase modulation
b) **Frequency modulation**
c) Amplitude modulation
d) Amplitude or phase modulation
40. HDTV have resolution _____.
- a) 1920 x 1880
b) 1880 x 1080
c) 1920 x 1180
d) **1920 x 1080**
41. VSB modulation is preferred in TV because _____.
- a) **it reduces the bandwidth requirement to half**
b) it avoids phase distortion at low frequencies
c) it results in better reception
d) none of the above
42. Digital TV has resolution of _____.
- a) **640×480 pixel**
b) 650×490 pixel
c) 460×480 pixel
d) 420×480 pixel



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
 - b) Sir Chester Carlson**
 - c) Sir Frances Gabe
 - d) Sir George Beers
2. What type of printer is most likely to use a continuous form feeder?
 - a) Laser printer**
 - b) Inkjet
 - c) Dot-matrix
 - d) USB
3. What is another name for a laser printer?
 - a) Photoelectric printer**
 - b) Page printer
 - c) CYMK printer
 - d) Platen driver
4. Which of the following devices gives the paper a positive charge?
 - a) The laser
 - b) The print drum
 - c) The registration rollers
 - 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



- 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) **$+600\text{Vdc}$**
- b) -600Vdc
- c) -100Vdc
- d) $+100\text{Vdc}$
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**
- b) Aluminum
- c) Ink
- d) Rubber
10. What device removes unused toner from the print drum?
- a) **Transfer corona wire**
- b) Static eliminator strip
- c) Laser
- 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**
- b) Friction feed
- c) Friction continuous form feed
- d) Inverted gravity feed
14. Screen printing utilizes a _____ to control the location of the ink.
- a) Layer
- b) **Mask**



- c) Point
d) Spot
15. _____ is the only commonly utilized stencil printing method utilized. It utilizes a fine mesh screen mounted to a frame.
- a) Copper screen printing
b) Zinc screen printing
c) **Silk screen printing**
d) Linen screen printing
16. The _____ is held against the surface to be printed, and ink is forced through the _____ (and supporting screen) with utilize of a squeegee.
- a) Pin
b) **Stencil**
c) Point
d) Impression
17. The microwave oven was invented by american engineer named as _____.
- a) **Sir Percy Spencer**
b) Dr Raymond Lemieux
c) Sir Peter Williamson
d) Sir Enrico Fermi
18. Which of the following is a synonym for loss factor of food?
- a) Loss tangent
b) Dielectric loss
c) **Loss tangent & Dielectric loss**
d) None of the mentioned
19. Which of the following is true about loss factor of food?
- a) It is desirable quality of food
b) It is the ability of food to absorb waves
c) It is represented by ϵ
d) **All of the mentioned**
20. Which of the following is untrue?
- a) It is difficult to predict the electric field intensity inside a food material
b) Design of oven plays an important role in determining the electric filed intensity in a food material
c) Orientations of microwaves is an important role
d) **None of the mentioned**
21. Statement 1: In microwave heating, heat is not applied to the food item.
Statement 2: Radiation doesn't gives even drying whereas microwave heating does.
- a) True, False
b) **True, True**
c) False, False
d) False, True
22. Statement 1: The factor F_0 shows the microbial safety in the food item at the coldest point.
Statement 2: F_0 takes the time-temperature data at that particular point and compares conventional heating to microwave heating.
- a) True, False
b) **True, True**
c) False, False
d) False, True



42. Which of the following material is used to make heating element of electric toaster?
- a) Tungsten. c) Iron.
b) Platinum. d) **Nichrome.**
43. The heating element in an electric iron is wound around a sheet of
- a) **mica.** c) cotton.
b) cardboard. d) porcelain.
44. The rating of all electric iron is expressed in
- a) **watt.** c) kWh.
b) kVA. d) HP.
45. The capacity of an air conditioner is expressed in
- a) watt. c) kWh.
b) HP. d) **tons.**
46. The capacity of a domestic refrigerator is expressed in
- a) watt. c) watt-hours.
b) HP. d) **tons.**
47. Which one of the following invented the first self-contained Digital Camera?
- a) Sir Josip Belusic c) Sir Igory Sikorsky
b) Sir Thomas Edison d) **Sir Steven Sasson**
48. The first self-contained digital camera was invented in
- a) **1975** c) 1999
b) 1989 d) 1956
49. Which control changes the volume of light entering the camera?
- a) Shutter c) ISO
b) **Aperture** d) Focus
50. If your metered exposure was 1/125 and f8, 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 longer than the standard?
- a) Telephoto c) **Wide Angle**
b) Zoom d) Macro
52. Which aperture gives greater depth of field?
- a) **F22** c) F20
b) F21 d) F19
53. Which of the following is a factor in depth of field?
- a) Aperture b) **Shutter speed**



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