Model Viva Questions for "**communication lab**"
Class: **VI SEM (ET&T)**
Title of the Practical: **Study of fiber parameter**

Q1What is Optical Fiber?
A1 optical fiber functions as a "light pipe," carrying light generated by lasers and other signal transmission sources to its destination.

Q2What are optical fiber parameter?
A2Wavelength (λ), Core radius (a), Index of Core* (n1),index of Cladding* (n2),Maximum intensity of light (I_o),Numerical Aperature (NA),V-Number (V), Mode Type, Number of Modes, Spot size radius (w_o), Mode Field Diameter (MFD), Power at MFD.

Q3 what is formula for Numerical Aperature?
A3Numerical Aperature- NA = $\sqrt{(n1^2-n2^2)}$

Q4What is formula for V-number
A4V-number- V = 2*π*a*NA/λ?

Q5What are the regions of a OF?
A5An optical fiber consists of at least two distinct regions known as the core and cladding

Q6 what are the Methods of Optical Parameter Measurement?
A6Methods of Optical Parameter Measurement-the method of comparing signal levels at the OF input and output; the method of controlling the radiation intensity in the far zone ,the pulse location ,the method of measuring the light energy emitted into the surrounding
Medium , the bolometric method , the calorimetric method ; the photometric method ,the backscattering method , The method of comparing signal levels at the OF.

Q7To guide light what should the relationship between n1 and n2?
A7 n1 must be slightly larger than n2 to guide light.

Q8 Index of Core* n1= 1.445 and Index of Cladding n2= 1.44. Calculate NA?
A8 NA= .121

Q9 Explain single mode fiber?
A9 Single-mode fibers (Fig. 2) have a small core size (< 10 µm) which permits only one mode or ray of light to be transmitted. Single-mode fibers have low attenuation and zero dispersion at 1310 nm. This fiber is a general-purpose fiber for systems of moderate distance, transmission rates and channel count.

Q10 Explain multimode fiber?
A10 Multimode fibers (Fig. 3) have larger cores that guide many modes or rays simultaneously. When one pulse of a signal is generated into a multimode fiber, the multiple modes enter the fiber core from different angles and each mode propagates at a different speed. This causes pulse broadening (modal dispersion), limiting the speed at which subsequent pulses may be generated without overlapping. Multimode fibers are generally used for short distance applications, such as within buildings.

Title of the Practical: **Study of OF as transmission media**

Q1:-What is Fiber-optic communication?
A1:-Fiber-optic communication is a method of transmitting information from one place to another by sending pulses of light through an optical fiber.

Q2 How fiber-optic transmission works?
A2The digital bit stream enters the light source. If a one bit is present, the light source pulses light in that time slot, but if there is a zero bit, there is no light pulse (or vice versa, depending on how it is set up). The absence or presence of light therefore represents the discrete ones and zeros. Light energy, like other forms of energy, attenuates as it moves over a distance, so it has to run though amplification or repeating process.

Q3What is transmission medium? Give example.
A3 Transmission medium (plural transmission media) is a material substance (solid, liquid, gas, or plasma) which can propagate energy waves. For example, the transmission medium for sound received by the ears is usually air, but solids and liquids may also act as transmission media for sound.

Q4What is Time-division multiplexing?
A4Time-division multiplexing (TDM) is a type of digital or (rarely) analog multiplexing in which two or more signals or bit streams are transferred apparently simultaneously as sub-channels in one communication channel, but are physically taking turns on the channel.

Q5 what is codec?
A5 A codec is a device or computer program capable of encoding and/or decoding a digital data stream or signal. The word codec is a portmanteau of 'compressor-decompressor' or, more commonly, 'coder-decoder'.

Q6 Give example of CODEC in the field of media?
A6, a digital video (using a DV codec) of a sports event needs to encode motion well but not necessarily exact colors, while a video of an art exhibit needs to perform well encoding color and surface texture.

Q7How can we classify transmission medium?
A7 A transmission medium can be classified as a:1. Linear medium, if different waves at any particular point in the medium can be superposed; 2.Bounded medium, if it is finite in extent, otherwise unbounded medium; 3.Uniform medium or homogeneous medium, if its physical properties are unchanged at different points; 4.Isotropic medium, if its physical properties are the same in different directions.

Q8 Q7How can we classify transmission media?
A8 transmission media are classified as one of the following:1.Guided (or bounded) - Waves are guided along a solid medium such as a transmission line.2.Wireless (or unguided) - Transmission and reception are achieved by means of an antenna.

Q9 Define optical medium?
A9 an optical medium is material through which electromagnetic waves propagate. It is a form of transmission medium. The permittivity and permeability of the medium define how electromagnetic waves propagate in it.

Q10 Explain excitable medium?
A10 an excitable medium is a nonlinear dynamical system which has the capacity to propagate a wave of some description, and which cannot support the passing of another wave until a certain amount of time has passed .

Q11: What is Manchester code?
A11: In telecommunication, Manchester code (also known as Phase Encoding, or PE) is a line code in which the encoding of each data bit has at least one transition and occupies the same time.

Title of the Practical: **Study of losses in OF**

Q1 what are the losses in optical fiber?
A1Reflection losses, Fiber separation, Lateral misalignment. Angular misalignment, Core and cladding diameter mismatch, Numerical aperture (NA) mismatch, Refractive index profile difference, Poor fiber end preparation

Q2 Fiber-to-fiber connection loss is increased or decreased by Intrinsic coupling losses and Extrinsic coupling losses?
A2 Fiber-to-fiber connection loss is increased by Intrinsic coupling losses and Extrinsic coupling losses.

Q3Define Bending losses?
A3propagation losses in an optical fiber (or other waveguide) caused by bending.

Q4Explain power in OF?
A4The power outputs of a transmitter or the input to receiver are "absolute" optical power measurements, that is, we measure the actual value of the power.

Q5Explain loss in OF?
A5 Loss is a "relative" power measurement, the difference between the power coupled into a component like a cable or a connector and the power that is transmitted through it. This difference is what we call optical loss and defines the performance of a cable, connector, splice, etc.

Q6 Name the types of methods used to measure loss?
A6There are two methods that are used to measure loss, which we call "single-ended loss" and "double-ended loss".

Q7 Explain Light scattering?
A7 the propagation of light through the core of an optical fiber is based on total internal reflection of the light wave. Rough and irregular surfaces, even at the molecular level, can cause light rays to be reflected in random directions. This is called diffuse reflection or scattering, and it is typically characterized by wide variety of reflection angles.

Q8 in OF why attenuation losses occur?
A8 attenuation results from the incoherent scattering of light at internal surfaces and interfaces.

Q9 what material are used for manufacturing of optical fiber?
A9 Glass optical fibers are almost always made from silica, but some other materials, such as fluorozirconate, fluoroaluminate, and chalcogenide glasses as well as crystalline materials like sapphire, are used for longer-wavelength infrared or other specialized applications. Silica and fluoride glasses usually have refractive indices of about 1.5, but some materials such as the chalcogenides can have indices as high as 3. Typically the index difference between core and cladding is less than one percent.

Q10 Why cladding is coated by a "buffer"?
A10 the cladding is coated by a "buffer" that protects it from moisture and physical damage

Title of the Practical: **Study of characteristic of fiber optic LED and photo detector**

Q1What is LED?
A1A light-emitting diode (LED) is a semiconductor light source.

Q2 How LED is used?
A2 LEDs are used as indicator lamps in many devices, and are increasingly used for lighting.

Q3What is electroluminescence in LED?
A3When a light-emitting diode is forward biased (switched on), electrons are able to recombine with electron holes within the device, releasing energy in the form of photons. This effect is called electroluminescence

Q4What are advantages of LED over incandescent light sources?
A4LEDs present many advantages over incandescent light sources including lower energy consumption, longer lifetime, improved robustness, smaller size, faster switching, and greater durability and reliability.

Q5 what are Practical use of LED?
A5 The first commercial LEDs were commonly used as replacements for incandescent and neon indicator lamps, and in seven-segment displays,[19] first in expensive equipment such as laboratory and electronics test equipment, then later in such appliances as TVs, radios, telephones, calculators, and even watches (see list of signal uses).

Q6What Technology is used in LED?
A6Like a normal diode, the LED consists of a chip of semi conducting material doped with impurities to create a p-n junction. As in other diodes, current flows easily from the p-side, or anode, to the n-side, or cathode, but not in the reverse direction. Charge-carriers—electrons and holes—flow into the junction from electrodes with different voltages. When an electron meets a hole, it falls into a lower energy level, and releases energy in the form of a photon.

Q7What are the applications of LED?
A7 1.Visual signals where light goes more or less directly from the source to the human eye, to convey a message or meaning. 2. Illumination where light is reflected from objects to give visual response of these objects. 3. Measuring and interacting with processes involving no human vision. 4. Narrow band light sensors where LEDs operate in a reverse-bias mode and respond to incident light, instead of emitting light.

Q8 what is Photosensor?
A8 Photosensors or photodetectors are sensors of light or other electromagnetic energy.

Q9What should we do for converting LED to photodiode?
A9 LEDs reverse-biased to act as photodiodes

Q10Give examples of photoconductors?
A10 vacuum-tube devices, semiconductor photodiodes, thermocouple semiconductor, photocondtive devices

Title of the Practical: **Study of PAM/PPM/PWM signals**.

Q1Explain PAM?
A1Pulse-amplitude modulation, acronym PAM.PAM, is a form of signal modulation where the message information is encoded in the amplitude of a series of signal pulses.

Q2 Give example PAM?
A2Example: A two bit modulator (PAM-4) will take two bits at a time and will map the signal amplitude to one of four possible levels, for example −3 volts, −1 volt, 1 volt, and 3 volts.

Q3Where PAM is used?
A3Pulse-amplitude modulation is widely used in baseband transmission of digital data, with non-baseband applications having been largely superseded by pulse-code modulation, and, more recently, by pulse-position modulation.

Q4What is PPM?
A4.Pulse-position modulation (PPM) is a form of signal modulation in which M message bits are encoded by transmitting a single pulse in one of 2^M possible time-shifts. This is repeated every T seconds, such that the transmitted bit rate is M/T bits per second. It is primarily useful for optical communications systems, where there tends to be little or no multipath interference.

Q5 Explain PWM?
A5 Pulse-width modulation (PWM) is a commonly used technique for controlling power to inertial electrical devices, made practical by modern electronic power switches.

Q6 define Duty cycle?
A6The term duty cycle describes the proportion of 'on' time to the regular interval or 'period' of time; a low duty cycle corresponds to low power, because the power is off for most of the time. Duty cycle is expressed in percent, 100% being fully on.

Q7Explain principal of PWM?
A7Pulse-width modulation uses a rectangular pulse wave whose pulse width is modulated resulting in the variation of the average value of the waveform.

Q8 what is the use of Delta modulation for PWM control?
A8 the use of delta modulation for PWM control, the output signal is integrated, and the result is compared with limits, which correspond to a reference signal offset by a constant. Every time the integral of the output signal reaches one of the limits, the PWM signal changes state.

Q9 what is the use of Delta sigma modulation for PWM control?
A9 In delta-sigma modulation as a PWM control method, the output signal is subtracted from a reference signal to form an error signal. This error is integrated, and when the integral of the error exceeds the limits, the output changes state.

Q10compair PPM and M-FSK?
A10 PPM and M-FSK systems with the same bandwidth, average power, and transmission rate of M/T bits per second have identical performance in an AWGN (Additive White Gaussian Noise) channel. However, their performance differs greatly when comparing frequency-selective and frequency-flat fading channels. Whereas frequency-selective fading produces echoes that are highly disruptive for any of the M time-shifts used to encode PPM data, it selectively disrupts only some of the M possible frequency-shifts used to encode data for M-FSK. Conversely, frequency-flat fading is more disruptive for M-FSK than PPM, as all M of the possible frequency-shifts are impaired by fading, while the short duration of the PPM pulse means that only a few of the M time-shifts are heavily impaired by fading.

Q11What is the main advantage of PWM?
A11The main advantage of PWM is that power loss in the switching devices is very low. When a switch is off there is practically no current, and when it is on, there is almost no voltage drop across the switch. Power loss, being the product of voltage and current, is thus in both cases close to zero.

Title of the Practical; **Study of PC-to-PC communication using optical fiber link and two RS 232 card**

Q1 what is optical fiber?

A1An optical fiber is a thin, flexible, transparent fiber that acts as a waveguide, or "light pipe", to transmit light between the two ends of the fiber.

Q2What is fiber optics?

A2 the field of applied science and engineering concerned with the design and application of optical fibers is known as fiber optics

Q3 Tell use of optical fiber?

A3Optical fibers are widely used in fiber-optic communications, which permits transmission over longer distances and at higher bandwidths (data rates) than other forms of communication

Q4Define MMF and SMF?

A4Fibers which support many propagation paths or transverse are called multi-mode fibers (MMF), while those which can only support a single mode are called single-mode fibers (SMF). Multi-mode fibers generally have a larger core diameter, and are used for short-distance communication links and for applications where high power must be transmitted. Single-mode fibers are used for most communication links longer than 1,050 meters (3,440 ft).

Q5 Explain Total internal reflection?

A5When light traveling in a dense medium hits a boundary at a steep angle (larger than the "critical angle" for the boundary), the light will be completely reflected. This effect is used in optical fibers to confine light in the core. Light travels along the fiber bouncing back and forth off of the boundary. Because the light must strike the boundary with an angle greater than the critical angle, only light that enters the fiber within a certain range of angles can travel down the fiber without leaking out. This range of angles is called the acceptance cone of the fiber. The size of this acceptance cone is a function of the refractive index difference between the fiber's core and cladding.

Q6What is light scattering?

A6 the propagation of light through the core of an optical fiber is based on total internal reflection of the light wave. Rough and irregular surfaces, even at the molecular level, can cause light rays to be reflected in random directions. This is called diffuse reflection or scattering, and it is typically characterized by wide variety of reflection angles.

Q7What is RS 232?

A7 In telecommunications, RS-232 (Recommended Standard 232) is a standard for serial binary single-ended data and control signals connecting between a DTE (Data Terminal Equipment) and a DCE (Data Circuit-terminating Equipment). It is commonly used in computer serial. The standard defines the electrical characteristics and timing of signals, the meaning of signals, and the physical size and pinout of connectors.

Q8What is the role of RS 232 in modern computer?

A8 Today, RS-232 has mostly been replaced in personal computers by USB for local communications. Compared with RS-232, USB is faster, uses lower voltages, and has connectors that are simpler to connect and use. Both standards have software support in popular operating systems. USB is designed to make it easy for device drivers to communicate with hardware.

Q9 what is PC-to-PC communication?

A9It's actually just what it says it is -- one computer networked to another. Someone gets on one computer and uses information on the other computer. This could be file sharing. It could be sharing a printer. It could be simply passing e-mail back and forth.

Q10 Explain functions of Link designing?

A10 Link design consists basically of two functions: (1) calculating optical power losses occurring between the light source and the photodetector. (2) Determining bandwidth limitations on data carrying abilities imposed by the transmitter, fiber and receiver.

Title of the Practical**: Study of MTI, CW, Doppler radar**

Q1 Define Radar?

A1Radar is an object-detection system which uses electromagnetic waves — specifically radio waves — to determine the range, altitude, direction, or speed of both moving and fixed objects such as aircraft, ships, spacecraft, guided missiles, motor vehicles, weather formations, and terrain.

Q2 When Practical radar was developed?

A2Practical radar was developed in secrecy during World War 2 by Britain and other nations.

Q3 what is the modern uses of radar?

A3The modern uses of radar are highly diverse, including air traffic control, radar astronomy, air-defense systems, antimissile systems; nautical radars to locate landmarks and other ships; aircraft anti-collision systems; ocean-surveillance systems, outer-space surveillance and rendezvous systems; meteorological precipitation monitoring; altimetry and flight-control systems; guided-missile target-locating systems; and ground-penetrating radar geological observations.

Q4 what is the Principal of radar?

A4A radar system has a transmitter that emits radio waves called radar signals in predetermined directions. When these come into contact with an object they are usually reflected and/or scattered in many directions. Radar signals are reflected especially well by materials of considerable electrical conductivity—especially by most metals, by seawater, by wet land, and by wetlands. Some of these make the use of radar altimeters possible. The radar signals that are reflected back towards the transmitter are the desirable ones that make radar work. If the object is moving either closer or farther away, there is a slight change in the frequency of the radio waves, due to the Doppler effect.

Q5 what is clutter?

A5Clutter refers to radio frequency (RF) echoes returned from targets which are uninteresting to the radar operators. Such targets include

Q6What is MTI?

A6Moving target indication (MTI) is a mode of operation of a radar to discriminate a target against clutter.

Q7 what is Doppler Effect?

A6The Doppler effect (or Doppler shift), named after Austrian physicist Christian Doppler who proposed it in 1842, is the change in frequency of a wave for an observer moving relative to the source of the wave. It is commonly heard when a vehicle sounding a sirenor horn approaches, passes, and recedes from an observer. The received frequency is higher (compared to the emitted frequency) during the approach, it is identical at the instant of passing by, and it is lower during the recession.

Q6 Give Principal of Doppler effect?

A6When the source of the waves is moving toward the observer, each successive wave crest is emitted from a position closer to the observer than the previous wave. Therefore each wave takes slightly less time to reach the observer than the previous wave. Therefore the time between the arrivals of successive wave crests is reduced, causing an increase in the frequency. While they are traveling, the distance between successive wave fronts is reduced; so the waves "bunch together". Conversely, if the source of waves is moving away from the observer, each wave is emitted from a position farther from the observer than the previous wave, so the arrival time between successive waves is increased, reducing the frequency. The distance between successive wave fronts is increased, so the waves "spread out".

Q7What is CW radar?

A7Continuous-wave radar system is a radar system where a known stable frequency continuous radio wave energy is transmitted and then received from any reflecting objects. The return frequencies are shifted away from the transmitted frequency based on the Doppler Effect if they are moving.

Q8 what is the main advantage of the CW radars?

A8 the main advantage of the CW radars is that they are not pulsed and simple to manufacture. They have no minimum or maximum range (although the broadcast power level imposes a practical limit on range) and maximize power on a target because they are always broadcasting.

Q9 Can CW radar measure range?

A9 Conventional CW radar cannot measure range because there is no basis for the measurement of the time delay.

Q10What is the formula for radar range equation?

A10 the power Pr returning to the receiving antenna is given by the radar equation:

$$Pr= (Pt\ Gt\ Ar\ \sigma F^4)/((4Л)^2Rt^2Rr^2)$$

Where Pt = transmitter power Gt = gain of the transmitting antenna Ar = effective aperture (area) of the receiving antenna σ = radar cross section, or scattering coefficient, of the target F = pattern propagation factor Rt = distance from the transmitter to the target Rr = distance from the target to the receiver. In the common case where the transmitter and the receiver are at the same location, Rt = Rr and the term $Rt^2\ Rr^2$ can be replaced by R4, where R is the range.

Title of the Practical; **Study of cable TV system**

Q1What is the full form of TV?

A1television.

Q2What is Cable TV?

A2Cable television is a system of providing television to consumers via radio frequency signals transmitted to televisions through coaxial cables or Digital light pulses though fixed optical fibers located on the subscriber's property, much like the over-the-air method used in traditional television broadcasting (via radio waves) in which a television antenna is required

Q3 How Cable Television Works?

A3The earliest cable systems were, in effect, strategically placed antennas with very long cables connecting them to subscribers' television sets. Because the signal from the antenna became weaker as it traveled through the length of cable, cable providers had to insert amplifiers at regular intervals to boost the strength of the signal and make it acceptable for viewing.

Q4 How to Build a Cable TV System?

A4 Procedure: - 1Select a central logical location to mount a high-bandwidth splitter or distribution block. Screw this device down to a secure spot using the drill, Philips bit and 2-inch wood screws. This spot can be a basement stud or rafter or a simple panel. 2 Determine the individual locations desired for cable entry. In most cases, cable terminations are wall plates in the individual spaces. Using the coax cutters, cut a sufficient amount to reach from a space to the distribution location. 3 Strip off 1/4-inch of insulation from one end of the coax using the coax stripper. Place the stripper over the end of the wire, squeeze and rotate the stripper around the cable until it spins freely. Pull off the cut jacketing from the cable. Fold the shielding back against the jacket. Push the connector onto the end of the now-exposed wire as far as it will go. Place the coax crimper over the collar of the connector, squeezing the handles until they are secure. 4 Repeat the stripping and termination process for all coax cable ends designated for connection to the splitter. Screw on the connectors to the output legs in a clockwise motion, until they are fully seated. 5 Drill a hole through the baseboard into the access area where the splitter is located. The bit should penetrate through the footer and into the access area. Remove the bit from the hole. 6 Locate the small hole the 3/16-inch bit created in the footer. In the access space, take the 1-inch bit and drill straight up through the footer, immediately adjacent to the smaller hole. Drill a 2-inch hole directly above the hole made behind the baseboard, at the same height as other outlets. Repeat these steps for each room designated for coax wiring.7 Grab the fish tape in the access area. Bring the end of the coax cable parallel to the end of the fish tape, wrapping a few tight turns of the electrical tape around both. Push the tape back through the footer and through the 2-inch hole in the wall. 8 Unwrap the tape, freeing the coax. Terminate the coax as detailed in the access room. Screw on the connector to the rear of the coax plate and screw the plate to the wall using two wood screws and the drill with a Philips bit.Q5 what is broadcast television systems?

A5Broadcast television systems are encoding or formatting standards for the transmission and reception of analog television signals.

Q6What is DTV?

A6 Digital television (DTV) is the transmission of audio and video by discrete (digital) signals, in contrast to the analog signals used by analog TV. Countries such as the United States are replacing over-the-air broadcast analog television with digital television to allow other uses of the radio spectrum formerly used for analog TV broadcast.

Q7what is Digital cable?

A7 Digital cable is a generic term for any type of cable television distribution using digital video compression or distribution.

Q8What is Cable CARD?

A8 Cable CARD is a special-use PCMCIA (PC) card that allows consumers in the United States to view and record digital cable television channels on digital video recorders, computers and televisions without the use of other equipment such as a set top box (STB) provided by a cable company. The card may be provided by the local cable provider; usually for a nominal monthly fee.

Q9 explain Private Cable Operator?

A9 A Private Cable Operator (also known as PCO) is a private small independent cable company competing directly with Multi system operators. PCOs typically offer services to multi-family dwellings, gated communities, hotels and other small businesses. In some small municipalities the city may be a PCO.

Q10what is QAM tuner?

A10 QAM stands for quadrature amplitude modulation, the format by which digital cable channels are encoded and transmitted via cable television providers. QAM tuners can be likened to the cable equivalent of an ATSC tuner which is required to receive over-the-air (OTA) digital channels broadcast by local television stations; many new cable-ready digital televisions support both of these standards. Although QAM uses the same 6 MHz bandwidth as ATSC, it carries about twice the data (38.47 Mbp/s @256QAM) due to the lack of error correction; however, this requires a significantly cleaner signal path, such as distribution through hybrid fiber-coax digital cable

Title of the Practical: **Study of satellite receiver**

Q1What is the end component in the satellite TV system?

A1The end component in the entire satellite TV system is the receiver.

Q2 what is the job of receiver?

A2 the receiver has four essential jobs:

It de-scrambles the encrypted signal. It takes the digital MPEG-2 or MPEG-4 signal and converts it into an analog format that a standard television can recognize. It extracts the individual channels from the larger satellite signal it keeps track of pay-per-view programs and periodically phones a computer at the provider's headquarters to communicate billing information.

Q3 what is Satellite television?

A3Satellite television is television delivered by the means of communications satellite and received by a satellite and set-top box.

Q4 Explain technology used in Satellites?

A4Satellites used for television signals are generally in either naturally highly elliptical (with inclination of +/-63.4 degrees and orbital period of about 12 hours, also known as Molniya orbit) or geostationary orbit 37,000 km (22,300 miles) above the earth's equator.

Q5 what are the standards of digital TV?

A5 In general, digital television, including that transmitted via satellites, are generally based on open standards such as MPEG and DVB-S or ISDB-S.

Q6Explain Direct broadcast via satellite?

A6Direct broadcast satellite, (DBS) also known as "Direct-To-Home" can either refer to the communications satellites themselves that deliver DBS service or the actual television service. DBS systems are commonly referred to as "mini-dish" systems. DBS uses the upper portion of the K_u band, as well as portions of the K_a band.

Q7Explain "Television receive-only"?

A7 The term Television receive-only, or TVRO systems are designed to receive analog and digital satellite feeds of both television or audio from both C-band and K_u-band transponders on FSS-type satellites. The higher frequency K_u-band systems tend to be Direct To Home systems and can use a smaller dish antenna because of the higher power transmissions and greater antenna gain.

Q8 Explain Direct to Home television?

A8Many satellite TV customers in developed television markets get their programming through a direct broadcast satellite (DBS) provider. The provider selects programs and broadcasts them to subscribers as a set package. Basically, the provider's goal is to bring dozens or even hundreds of channels to the customer's television in a form that approximates the competition from Cable TV. Unlike earlier programming, the provider's broadcast is completely digital, which means it has high picture and stereo sound quality. Early satellite television services broadcast in C-band - radio in the 3.7 Gigahertz (GHz) to 4.2 GHz frequency range. Digital broadcast satellite transmits programming in the Ku frequency range (10 GHz to 14 GHz).

Q9What is Satellite television?

A9 Satellite television is television delivered by the means of communications satellite and received by a satellite and set-top box. In many areas of the world it provides a wide range of channels and services, often to areas that are not serviced by terrestrial or cable providers.

Q10What are the standard used in Analog television?

A10 Analog television distributed via satellite is usually sent scrambled or unscrambled in NTSC, PAL, or SECAM television broadcast standards. The analog signal is frequency modulated and is converted from an FM signal to what is referred to as baseband. This baseband comprises the video signal and the audio sub carrier(s). The audio sub carrier is further demodulated to provide a raw audio signal. If the signal is a digitized television signal or multiplex of signals, it is typically QPSK.

Title of the Practical; **Study of dish antenna**

Q1What is a satellite dish?
A1A satellite dish is a dish-shaped type of parabolic antenna designed to receive microwaves from communications satellites, which transmit data transmissions or broadcasts, such as satellite television.
Q2What is the Principle of operation a satellite dish?
A2The parabolic shape of a dish reflects the signal to the dish's focal point. Mounted on brackets at the dish's focal point is a device called a feed horn. This feed horn is essentially the front-end of a waveguide that gathers the signals at or near the focal point and 'conducts' them to a low-noise block down converter or LNB. The LNB converts the signals from electromagnetic or radio waves to electrical signals and shifts the signals from the down linked C-band and/or K_u-band to the L-band range. Direct broadcast satellite dishes use an LNBF, which integrates the feed horn with the LNB.
Q3What is a dish antenna?
A3A dish antenna, also known simply as a dish, is common in microwave systems. This type of antenna can be used for satellite communication and broadcast reception, space communications, radio astronomy, and radar.
Q4What cable is used for satellite television reception?
A4For satellite television reception, coaxial cable is used.
Q5What is a parabolic antenna?
A5A parabolic antenna is an antenna that uses a parabolic reflector, a surface with the cross-sectional shape of a parabola, to direct the radio waves. The most common form is shaped like a dish and is popularly called a dish antenna or parabolic dish.
Q6 what is the main advantage of a parabolic antenna?
A6The main advantage of a parabolic antenna is that it is highly directive; it functions analogously to a searchlight or flashlight reflector to direct the radio waves in a narrow beam, or receive radio waves from one particular direction only.
Q7name the main type's parabolic antenna?
A7Cylindrical, Paraboloidal or dish, Axial or front feed, Offset or off-axis feed, Cassegrain.
Q8Define gain for parabolic antenna?
A8The directive qualities of an antenna are measured by a dimensionless parameter called its gain, which is the ratio of the power received by the antenna from a source along its beam axis to the power received by a hypothetical isotropic antenna.
Q9 Define gain for parabolic antenna?
A9The angular width of the beam radiated by high-gain antennas is measured by the half-power beam width (HPBW), which is the angular separation between the points on the antenna radiation pattern at which the power drops to one-half (-3 dB) its maximum value.
Q10What is STB?
A10 A set-top box (STB) or set-top unit (STU) is a device that connects to a television and an external source of signal, turning the signal into content which is then displayed on the television or other display device.