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Ec6004 satellite communication 2 marks with answers

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONS ENGINEERING 2 AND 16 QUESTION MARKS AND ANSWER TOPICS CODE: EC1015 TOPIC NAME: SATELLITE COMMUNICATION PREPARED BY S.BEEMA BEEVI (Lect/ECE) DEV R.NEWLIN (Sr Lect/ECE) N.I COLLEGE OF ENGG, KUMARACOIL DEPARTMENT OF ELECTRONICS AND COMMUNICATIONS ANGLE B.E DEGREE QUESTION BANK EC1015 - SATELLITE COMMUNICATIONS ONE (2 Question Mark) 1.Ki the different applications of satellite system? * Largest International System (intel seating) * United States Seating System (Dom Sat) * National Oceanography Atmospheric Administration (NOAA) 2.Mention the different services of satellite system. *Fixed satellite service * Satellite Service Broadcasting * Mobile Satellite Services * Satellite Service Navigational * Meteorological Satellite Service. 3.Define polar-orbiting satellites. Polar orbit satellites orbit earth in such a way as to cover the northern & southern polar regions. 4.State kepler's first law. It stated that the path followed by the satellite around the main will be an ellipse. An ellipse has two focal points of F1 & A;M; F2. The center of the mask of the body's two systems, the terms of the baricenter are still centered on one of the foci.e = $\frac{a}{r} = \frac{1}{e} + \frac{r}{a}$ 5.StateKepler second law. It states that for equal time intervals, the satellite will sweep out equal areas of its orbital plane, concentrated in the baricenter. 6. State law third law. It declares that the square of the periodic time of orbit is perpendicular to the cube at the mean distance between the two bodies. $a^3 \propto T^2$ 7.Define apogees & perigee. * Is the most far-reaching point of the earth known as apogee. * The closest point from earth is known as perigee. The merge line of the perigee & apostle in the center of the earth. 9.Define up & amp; the nose that is rising. The point where the orbit crossed the equatorial plane goes from south to north. Point where the orbit crossed the equatorial plane goes from south to north. 10.Define inclination. Angles between the orbital aircraft & the equatorial ground aircraft. It is measured in the nose that rises from the equator of the obedience to go from east to west. 11.Define means abnormalities & true abnormalities. Mean Anomaly: It provides an average value in angular position of the satellite and referenced to the perijer. True anomaly: It is the angle from perigee to the satellite position, measured in the center of the earth. 12.Mention the apogee & perigee height. Rare = $a(1+e)$ Rpg = $a(1+e)$ Ha = $Ra-rp$ Hp = $rp - Rp$ 13. Define universal time. It is the time used for ever civil holding purposes & it is the time reference that is broadcast by the National Bureau of Standards as a standard for clock settings. UT days = $\frac{1}{24}$ (hours + minutes / 60 + seconds / 3600) UT = 360 X DAYS. 14.Mention the julian dates. JD=JD010+Day Number+Utday 15.ki What is Sideral Time? Sideral time is time to measure family and stars squarely. It will see that one full rotation sideral weather relative to the sun. That's because the Earth of his obity around the sun. 16.Define Sideral Day. It is defined as a deg-A' (western ES in satellite) A = 180deg +A' (ES in satellite) For the north ES hemisphere: A=A' (our ES best in satellites) A = 360-A' (ES east of satellite) A' = time-1 WdQ V- OLQ O 23.Write short notes on attitude control system. It is the system that achieves & maintains the demanding attitudes. The main functions of attitude control system include maintaining satellite positions just throughout the life span of the system. 24.Ki what is a polar lantern? A single actuator used that moves the lantern to a circular turches known as Antenna Polar Mon. 25.Wht is the declination? The angle of tilt is commonly referred to as the declination that must not be confused with the magnetic declination used to correct compass reading. 26.Define the Terms of Eclipse. During euinox period, the sun's ground & amp; The satellites in alignment with the result that eclipse Earth's shadow tha satellite & failed the sun to reach the solar satellite cells. The effects of the eclipse are apparent for approximately four weeks period – the maximum daily duration of the eclipse is about 1.20hours. 27.Ki what does that mean by charge? The load refers to the equipment used to provide the service for which the satellite was launched. 28.Ki what does that mean by transponder? In a communications satellite, the equipment that provides the link between the satellite transmitter to receive antennas is referred to as the transponder. 29.Write short notes on station hold. It is the process of maintenance of the satellite's attitudes against different factors that can cause driving and time. Satellites need to have their orbit adjusted from time to time because the satellite is firstly put into the correct orbit, progressive natural force. 30.Ki what does that mean by pitch angle? Movement of a spacecraft along an axle that is its peppercular longitudinal axle. It is deg of elevation or depression. 31.Ki what is a propellant? A solid or liquid substance burns a rocket for the purpose of producing thursty. 32. What is a Yaw? Yaw is rotation a verl on its vertical axle. 33. What is a Zero 'g'? Zero 'g' is a state when the opposite gravitational attraction is not equal & opposite initial strength & the body experiences no mechanical stress. 34.Description of satellites turned stabilizer. In a, turning stabilizer satellite, the body of the satellite turns to about 30 to 100rpm along the perpendicular axle of the orbital plane. The satellites are normally dual satellite turns and a turning section & a despun section on which antennas are mounted. These keep parked our r.to ground by smuggling the despens rotation. 35.Ki what does that mean by reuse frequency? The company with opposite sense of polarization can overlap at this technical frequency known as reus frequency. 36.Ki meant by antenna beam slot? A beam produced by a communications satellite antenna of sufficient size is angular to of sufficient size that the angular spread of the energy of the beam is very small and the result that is a region that is only a few hundred km of diameter illuminated on Earth.37. What is a TWTA? TWTAS are widely used in transponder to provide the final production power required to transtube the U.S. & its power supply. 38. What does this mean by Intermodulation default? The conversion AM/PM is then a complicated function of insurance carrier amplitude, but in addition, the nonlinear transfer feature introduces a more serious form of distorted known as intermodulation deformation. 39.Define backoff views. In order to reduce defects of intermodulation, the operating point of the TWT must move closer to the linear portion of the curve, the power input reduction being referred to as $1/p$ backoff. 40.Define dixer. The Transmit & Receive signals are separated from a device known as diplexer 41.Ki what is an OMT? The polarization recovery takes place in a device known as an ortocoupler or ortogonal mode transducer. 42. What is an intellectual polarization? Overlap occurs between channels, but these are alternating polarized but letting circular & circular dwahand reduce interference at acceptable levels. This is referred to as polarization forbidden. 43. What is a SCPC? In a thin road circuit, a transponder channel (36mhz) can be handled by a name. of single insurance companies, each associated with its own voice circuitry. 44.Define S/N ratio. The S/N is presented in the precedent section used to refer to the ratio of signaling power of noise power in the receiver output. This report is sometimes referred to as the post detector. 45.Ki what is noise weight? Improved the post detection signal in report rumors referred to as noise weight. 46. What is an EIRP? It is a measure of radiation or transmitting power to an antenna. It can be filled out by the Lantern Hunter & Cook in the Antenna views. 47.Write the equations of loss for clear heaven conditions. Losses = $(FSL)+(RFL)+(AML)+(AA)+(PL)$ 48.Ki what is a power noise density spectrum? Noise power per unit BW termed the NPS density. $N_0 = \frac{P}{BN} = \frac{KTn}{f}$ 49. What is an Intermodulation Noise? Intermodulation defects in amplified high powers can result in signal products that appear as noise & in fact referred to as Intermodulation Noise. 50. What kind of antenna loss antenna? *Sky rumors* Antenna 51.Ki what is an antenna loss? It is added to noise received as radiation & temperature the antenna lantern noise is in the sum of the noise temperature equivalent to all these sources. 52.Define the noise of heaven. It is a term used to describe the microwave radiation which is present in orthopedic universe & gt; originally displayed from the issue of any form, at temperature ends. 53.Define noise factor. An alternative way to represent tempered noise is by means of its noisefactor. In defining the NTFS to a amplifier, denote is not usually taken as 290k N0, exit = $FGKT0$ 54 What is a suitable US/you? He is one resistance elements. These losses are introduced by absorbing energy from the signal & converting it to heat. Risen attenuators, transmission lines & vagguides are all examples of appropriate networks. 55.Write the equation to system noise factor. $TS = Tent + Te1 + (L-1) T0 / G1 + L (F-1) T0 / G1$ 56.Define density of saturation flux. The density of flux required in antennas to receive the saturated antennas of TWTA products is the telemedicity of the saturated density. The 57.A satellite downlink of 12GHZ operates with a transmitted power of 6w & a antenna taken at 48.2db. Calculates the EIRP of Dbw.EIRP = $10\log6 + 48.2 = 56\text{Dbw}$. Calculates the profit of a paraboloidal 3m paraboloidal antenna operating at a frequency of 12GHZ. Supposing an opening efficiency of 0.5. $G = 10\log78168 = 48.9\text{Db}$ 59.Range between a terrain station & a satellite is 42000km. Calculate the free space to lose a frequency of 6GHZ. $(FSL) = 32.4 + 20\log4200 + 20\log6000 = 200.4\text{Db}$. 60.An antenna has a noise temperature of 35k & matched it to a receiver with a noise temperature of 100k. Calculates the density of noise power & the noise power for a BW of 36MHZ. $N_0 = (35+100) \times 1.38 \times 10^{-23} = 1.86 \times 10^{-21}\text{J}$ $PN = 1.86 \times 10^{-21} \times 36 \times 10^6 = 0.067\text{PW}$ 61.Ki What is a single mode of operation? A channel transponder aboard a satellite can be fully charged by a single transmission from a test. This is referred to as a single access mode of operation. 62.Ki the methods of multiple access techniques? FDMA (Multiple Technical Division Frequency) TDMA (Multiple Technical Division Time) 63.Ki what's the CDMA? & its type? In this method each signal is associated with a particular code that uses to spread the signal at frequency & time. * Spread multiple spectrum Access* pulse addresses of multiple 64.Ki what is a thin road route service? SCPC systems are widely used on lightly charged routes, this type of service is being referred to as a thin road service. 65. What is an important feature of SCPC Intelsat system? The system is that each channel is voice activated. This means that about a way of how phone conversations only one insurance company is operating at any time. 66.Ki what is a TDMA? What advantage? Only one insurance company uses the transponder at any given time, therefore producing intermodulation, which results from the nonlinear amplification of multiple carriers absent. Merits: The transponder traveling tube can operate at maximum power o/p or saturation. 67.Ki that preamble? Certain time slots at the beginning of each burst are used to bring distribution & synchronization information. This time slots collectively are referred to as preamble. 68.Define time rangers. It is necessary between clashes to prevent the clashes from overlapping. The guard time will vary from burst to burst depending on the accuracy with which the various clashes can be positioned in each frame. 69. What does this mean by renoun decoding? In certain phase detection systems the sensors must allow time to recover from a burst before the next clash is received by it. This is known as 70. What does it mean by direct closing feedback? The distribution positions are reckoned from the last bit to the unique word in the preamble. The loop method is also called Direct Lock feedback closed. 71. What does it mean by closing loop control feedback? The synchronization information is transmitted back to an Earth station from a far away, which is feedback has closed loop controls closed. 72.Define frame efficiency. It is a measure of the fraction of time frames used for the transmission of traffic. Frame efficiency is defined as $\frac{I}{WUDIILF ELWV WRWDO ELWV I}$ -bits overhead / bit total. 73. What does it mean by phone charge activity factor? The fraction of time an active transmission channel is known as the activity phone charge factors. 74. What does it mean by digital reversal interpolation? The point is that for a significant fraction of the channel's time available for other transmissions, & advantages are taken in this in a request form known as digital reversal interpolation. 75.Ki digital digital interpolation? · Digital time placement digital interpolation · Speech preacher encoded communication 76. What does that mean don't freeze out? It is supposed that a free satellite channel will be found for any spurt of incoming speech, but urges there is a finished probability that all channels will be handled & the speech speech is lost. Losing a pace of payroll in this way refers to as freeze out. 77.Ki what is DSI? The DSI progress is the ratio of the number of terrestrial channels to the number of satellite channels. It depends on the number of satellite channels provided as well the design aims that are declared above. 78. What are the advantages of SPEC methods on DSI methods? SPEC method on DSI method is that freezeout does not occur during overload conditions. 79.Ki report at tiny rates IF bandwidth? Rb/BIF P'm the scroll to my factor = 1 to BPSK M = 2 for QPSK. 80.Ki what are the demerits of conventional approach methods? * Expensive size & weight * power consumption. 81.Define multiple space divisions. The satellites in Geostationary orbit can be achieved through the use of antenna beam spots. The use of beam beam is also known as multiplexing space divisions. 82.Defining satellites changing TDMA? Space divisions muxing can be achieved by switching the antenna interconceptions to synchronizing with the TDMA frame rate, this being known as satellite switch switch TDMA. 83.Ki what is SS/TDMA? A modern model is a repetitive sequence in satellite switch mode, also referred to as SS/TDMA. 84.Ki what is the finding process? The energy is confusing or signaling energy interfering reduced by a factor known as the processing process. 85.Ki radarsat applications? * Shipping & amp; Shipping Osches *Ocean Map Features Map* Surveillance Polishing Oil *Iceberg Detection* Crop 86.Ki What is ECEF? The equatorial coordinator system is used with the GPS system, where it is called ground-centered, earth-fixed coordinator system. 87.Ki accuracy diligence? Position involves range differences, & where the ranges are almost equal, any very magnified errors to the difference. This effect, carried on as known as a result of the satellite geometry are known as diligence of accuracy. 89.Ki what is PDOP? With the GPS system, dilution of positions is being taken into account in a factor known as the diligence position of accuracy. 90. What is the word cord popping up? It is a binary word, a copy that is stored in each tea station. 91.Define SIC. Identifies the transmitted station. 92.Ki what is a starter in receiving boards? At any given traffic station, detection of the unique word to the popping reference signals starts to receive frames. 93.Ki mean by burst acquisition position & burst synchronization position? A station just entering, or joining after a long delay finds its correct place position. 94.Ki what is a single access? A channel transponder aboard a satellite can be fully charged by a single transmission from ground station. 95. What is a multiple accessibility technique? A transponder to be charged by a number of carriers. These can come from a number of stations could transmit one or more of the carriers. This mode of operation is known as multiple access techniques. 96.Ki types of multiple access techniques? *FDMA* TDMA 97.Ki mean not reusi frequency? The satellite as a whole to be accessed to Earth stations largely separates geographic but transmitted on the same frequency i.e., known as reuse frequency. 98. What does that mean by multiple access space divisions? The satellite as a whole to be accessed to Earth stations largely separates geographic but transmitted on the same frequency i.e., known as reuse frequency. This method to access it is known as multiple access space divisions. 99.Write the equations in C/N reports. $C / N_0 = (EIRP)+(G/T)-PESES-(K) \text{ dBHz}$. 100.Ki what is an error code detected? A code that allows for the detection of errors to temed a detected error code. PART B (16 Question Mark) 1.Descript the themes of Earth's satellite orbit. *Apogee: The further point from the ground. * Perigee: The closest approach point on the earth * Bulb: Point where the orbit crossing the equatorial plane will from south

to north. * Down nose: Point where the orbit crossed the equatorial plane goes from north to south. * Line of nose: The line to merge the up & down nose in the center of the ground. * Line apart: the line to join the perigee & defer to the center of the ground. * Inclination: Angle between the orbital aircraft & equatorial ground aircraft. * Orbit Prograde: An orbit in which the satellite moves in the same direction as the Earth's rotation. * Retrograde orbit: An orbit in which the satellite moves in a direction counter to Earth's rotation. * Argument to perigee: the angle from up the nose to perigee, measured in the orbital aircraft of the earth center in the direction of satellite movement. 2. Explain the orbital plane. Draw My own vector Diagram. ii) Explanation: * In the orbital plane, the vector position 'r' & the 'v' vector specify the movement of satellite. $R = a(1 - e^2) / 1 + e \cos v$ * Mean anomaly M at t time is $get M = n(T - T_0) - \sqrt{GM} + 2e \sin M + 5/4e^2 \sin 2M$. 3. Explain the orbital perturbations. Explanation: * Effects of Non-Effect Tea * Atmospheric Drag * Orbit Inclined * Calendar * Universal Time * Julian * Sidereal Time 4. Explain the Geometric & Equatorial top co-ordinary systems. · Diagram: · Explanation: 5. Explain the satellite point I) Diagram ii) Explanation: 6. Explain the angle determination view. Draw it clean designs. i) Diagram: ii) Explanation: 7. Explain the polar mount antenna. Draw it clean designs. i) Diagram: ii) Explanation: 8. Explain the limitations of visibility & sun transported out. i) Diagram: ii) Explanation: 9. Explain the attitude control. Draw it clean designs. i) Diagram: ii) Explanation: 10. Explain the system transponders. i) Diagram: ii) Explanation: * Transponder * Wideband receiver 11. Draw the drawing clean & explain the Insert Demultiplexer. i) Diagram: ii) Explanation: 12. Draw the clean & explain the antenna subsystem. i) Diagram: ii) Explanation: 13. Draw the block diagram & explain Receiving only home TV systems. i) Diagram: ii) Explanation: 14. Explain the indoor unit. i) Diagram: ii) Explanation: 15. Draw the block diagram & explain the antenna master tv antenna system. i) Diagram: ii) Explanation: * Community Antenna System TV * Transmit receives tea station. 16. Explain EIRP & transmission loss. * EIRP = GPS * EIRP is often expressed in db is $EIRP = (Ps) + (G) Dbw$. Transmission loss: · Free Space Transmission · Loss of Feeder · Loss of antenna misalignment · Fixed atmospheric & ionospheric loss 17. Draw diagrams in blocks & explain the system noise temperature. i) Diagram ii) Explanation: * Noise System * Antenna Noise * Amplifier Temperature * Factor Brie * Noise Temperature In Absorptive Network. 18. Explain the carrier of noise ratio of uplink & downlink frequency. 19. Explain the Intermodulation & Noise; density flocks saturated. 20. Explain the operation of FDMA system and relevant diagrams. i) Diagram ii) Explanation * Preassigned FDMA * Request Ranking FDMA 21. Explain the operation of FDMA down analysis link. i) Diagram ii) Explanation 22. Draw the frame format & explain the operation of TDMA system. i) Diagram ii) Explanation Reference burst * Guard Time * Insurance Company & recovery bit * Burst word code * Code identification * TTY * Service Channel 23. Draw the data format & explain the unique word detection. i) Diagram ii) Explanation * Probability Miss * False Detection Probability 24. Explain the satellite changed TDMA & CDMA. Draw the clean design. i) Diagram ii) Explanation 25. Explaining the radar was satisfied & MSAT. Mention applications. KEYWORDS: SATELLITE COMMUNICATIONS, SATELLITE COMMUNICATION PAPER, ANNA UNIVERSITY PAPER, ANNA UNIVERSITY, UNIVERSITY CHENNAI, ANNA UNIVERSITY UNIVERSITY UNIVERSITY TRICHY, ANNA UNIVERSITY TIRUNELVELI, ANNA UNIVERSITY MADURAI, ANNA UNIVERSITY SYLLABUS, ANNA-UNIVERSITY RESULT, A DISTANCE UNIVERSITY EDUCATION, ANNA UNIVERSITY MBA-CENTER FOR DISTANCE EDUCATION, ANNA UNIVERSITY'S SCHEDULE OF EXAMS, ANNA UNIVERSITY ADMISSION ADMISSION, ANNA UNIVERSITY COURSE, ANNA UNIVERSITY ACADEMICS, ANNA UNIVERSITY DEPARTMENT, ANNA UNIVERSITY RESEARCH, ANNA UNIVERSITY MAIL, ANNA UNIVERSITY QUESTION PAPER, ANNA UNIVERSITY DATE GUIDANCE, ANNA UNIVERSITY RE-EVALUATION

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