Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VIII

Course Code: **ETC802** and Course Name: **Satellite communication and Networks**

Time: 1 hour Max. Marks: 50

==============================================================================

Note to the students:- All the Questions are compulsory and carry equal marks .

|  |  |
| --- | --- |
| Q1.  | Compare to satellite in lower orbit, the satellite in higher orbit have |
| Option A: | Higher period |
| Option B: | Lower period |
| Option C: | Same period |
| Option D:  | Period has no ralation with height |
|  |  |
| Q2. | Elevation angle is measured |
| Option A: | From equatorial plane to orbital plane |
| Option B: | From geographical north to satellite |
| Option C: | From local horizontal plane to satellite path |
| Option D: | At the centre of earth |
|  |  |
| Q3. | Kepler’s third law states? |
| Option A: | T2 α a3 |
| Option B: | T3 α a2 |
| Option C: | T2 α a3/2 |
| Option D: | T α a2  |
|  |  |
| Q4. | A geostationary satellite is one which |
| Option A: | Hangs motionless in space about 36000 km about Earth |
| Option B: | Travels around the Earth in 24 hours |
| Option C: | Appears stationary to everybody on Earth |
| Option D: | Remains stationary above the Earth |
|  |  |
| Q5. | \_\_\_\_\_\_\_\_\_\_ is that part of a launch vehicle that carries the payload. |
| Option A: | Sustainer stage |
| Option B: | Spacecraft |
| Option C: | Booster stage |
| Option D:  | Control and guidance system |
|  |  |
| Q6. | The key electronic component in a communications satellite is the |
| Option A: | Telemetry |
| Option B: | On board computer |
| Option C: | Command and control system |
| Option D:  | Transponder |
|  |  |
| Q7.  | What is meant by transponder? |
| Option A: | In a communication satellite the equipment used to monitor health of satellite |
| Option B: | In a communication satellite, the equipment which provides the power supply is referred to as the transponder |
| Option C: | In a communication satellite, the equipment which provides the connecting link between the satellite’s transmit and receive antennas is referred to as the transponder. |
| Option D:  | In a communication satellite the equipment used to provide the service for which the satellite has been stabilize in orbit |
|  |  |
| Q8.  | Which of the following is not a part of the propulsion subsystem of a satellite? |
| Option A: | Gyroscope |
| Option B: | Jet thruster |
| Option C: | AKM |
| Option D:  | Fuel control system |
|  |  |
| Q9. | If station keeping is not done on satellite will effect on |
| Option A: | power-level adjustments  |
| Option B: | orbital adjustments  |
| Option C: | antenna maintenance |
| Option D:  | Earth station maintenance |
|  |  |
| Q10.  | Rain attenuation is a major challenge to microwave satellite communication especially at frequencies\_\_\_\_\_, causing unavailability of signals most of the time. |
| Option A: | Below 500khz |
| Option B: | Above 10Ghz |
| Option C: | Below 10Ghz |
| Option D:  | 20 Hz to 20 Khz |
|  |  |
| Q11.  | The available noise power from thermal noise source is given by |
| Option A: | PN = k TN / BN  |
| Option B: | PN = TN / BN  |
| Option C: | PN = k TN BN  |
| Option D:  | PN = k + TN / BN  |
|  |  |
| Q12.  | Link budget consists of calculation of |
| Option A: | Useful signal & Interfering noise power |
| Option B: | Interfering noise power |
| Option C: | Useful signal power |
| Option D: | Antenna noise power |
|  |  |
| Q13. | What is a TWTA?  |
| Option A: | Transmitting wave tube amplifier.  |
| Option B: | Travelling wave tube amplifier.  |
| Option C: | Transformer wave tube amplifier |
| Option D:  | Travelling wave transmitter amplifier |
|  |  |
| Q14.  | Noise figure measures the |
| Option A: | Power degradation |
| Option B: | Noise degradation |
| Option C: | SNR degradation |
| Option D:  | Power amplification |
|  |  |
| Q15. | A satellite transmits 10W power at 4 GHz with an antenna having a diameter of 1.4 m. what is the EIRP of satellite? |
| Option A: | 55.63 |
| Option B: | 35.36 |
| Option C: | 36.45 |
| Option D:  | 45.36 |
|  |  |
| Q16.  | To make antenna more directional, either its size must be increased or |
| Option A: | The number of its feed horns must be increased |
| Option B: | The frequency of its transmission must be increased |
| Option C: | Its effective isotropic radiated power (EIRP) must be increased |
| Option D:  | Its footprint must be increased |
|  |  |
| Q17. | For satellite communication, standard Earth stations have antenna diameters in the range of \_\_\_\_\_\_\_\_ metre. |
| Option A: | 10 to 15 |
| Option B: | 30 to 50 |
| Option C: | 5 to 10 |
| Option D: | 27.5 to 30 |
|  |  |
| Q18. | \_\_\_\_\_ are utilized to allow synchronization of the receivers between different slots and frames |
| Option A: | Preamble |
| Option B: | Data |
| Option C: | Guard bits |
| Option D:  | Trail bits |
|  |  |
| Q19.  | Why spread spectrum technique is inefficient for a single user? |
| Option A: | Small transmission bandwidth |
| Option B: | Large transmission bandwidth |
| Option C: | Fixed transmission bandwidth |
| Option D:  | Fixed null bandwidth |
|  |  |
| Q20. | A PN sequence has the property that it has |
| Option A: | Equal number of 1s and 0s |
| Option B: | A long string of 0s useful in carrier recovery |
| Option C: | Alternate 1s and 0s useful in clock recovery |
| Option D: | Good autocorrelation property useful in synchronization |
|  |  |
| Q21. | SPADE, though an FDMA system has channel capacity of 800 because |
| Option A: | Channels are assigned to users on demand |
| Option B: | They are easy to generate |
| Option C: | Preamble is used in each data burst |
| Option D:  | It requires less bandwidth |
|  |  |
| Q22.  | Multibeam satellite system make it possible to \_\_\_\_\_\_\_\_ |
| Option A: | Reduce size of earth station and cost |
| Option B: | Increase the size of earth station |
| Option C: | Increase the cost |
| Option D:  | Reduce the traffic |
|  |  |
| Q23. | Being atmospheric dependent, laser communication cannot be used for communication  |
| Option A: | In deep space |
| Option B: | Between two satellite themselves |
| Option C: | Between earth station and geosynchronous satellite  |
| Option D:  | Between cross satellite laser communication |
|  |  |
| Q24.  | In the OSI model, as a data packet moves from the lower to the upper layers, headers are \_\_\_\_\_\_\_ |
| Option A: | Added |
| Option B: | Removed |
| Option C: | Rearranged |
| Option D:  | Randomized |
|  |  |
| Q25. | For large number of beams to avoid complexity of satellite payload which system is used  |
| Option A: | Frequency reuse |
| Option B: | Transponder hopping |
| Option C: | CDMA |
| Option D:  | Beam switching technology |