Seat No.

Total No. of Pages : 3

MAR_APR 2025 SUMMER EXAMINATION

11731 Bachelor of Technology (NEP-2.0)

Sub. Name: Satellite Communication

Sub. Code: 83823/84049

Day and Date: MAY ,05-05-2025 **Total Marks: 70**

Time: 10:30 AM To 01:00 PM

Instructions: **1. Draw neat labelled diagrams wherever necessary**
2. Figures to the right indicate full marks

Q1) Solve following MCQ. **[14]**

i. What is the primary use of communication satellites?
A. Telephone service
B. Surveillance
C. Research
D. GPS

ii. The control and management segment in satellite network architecture does not contain ---------.
A. Network management centres (NMC)
B. Network control centres (NCC)
C. Mission and network management centre (MNMC)
D. Router control unit

iii. Inclination Changes are due to ------
A. Effects of Earth's oblateness
B. Effect of the Sun and the Moon
C. Both of them
D. None of them

iv. Telemetry System monitors ------
A. Satellite Links
B. Earth Station Transmitter
C. Earth Station Receiver
D. Satellite Health

v. GEOs stands for----------.
A. Geostationary Satellite
B. Geo standing Satellite
C. Global stationary Satellite
D. None of above

vi. The ---------- produce electrical power (current) from incident sunlight.

A. Solar arrays
B. Solar cells
C. Solar sets
D. Solar energy

vii. The central station in satellite architecture will have a ----------that does all the management functions.
A. A router
B. Central station
C. Network Control Center (NCC)
D. Management hub

Q2) Attempt any TWO **[14]**

i. Explain Kepler's three laws of planetary motion.
ii. Derive expression for power received (PR) by earth station from satellite.
iii. An earth station situated in Docklands of Landon needs to calculate the look angle to geostationary satellite in the Indian Ocean operated by Intelsat. The details of the earth station are as: Earth station latitude and longitude are 52.0 deg N and 0 deg. Satellite longitude (sub satellite point) is 66. 0degE.Find the central angle, elevation angle E1, intermediate angle and Azimuth angle.

Q3) Attempt any TWO **[14]**

i. Explain elevation angle calculation and azimuth angle calculation for antenna at receiving earth station.
ii. Explain with typical block diagram tracking, telemetry, command and monitoring system
iii. Explain design link for specified C/N using combination of C/N and C/I values in satellite link.

Q4) Attempt any TWO **[14]**

i. Explain Digital DBS TV
ii. Explain working principle of GPS Navigation system
iii. Write a note on satellite networks

Q5) Attempt any TWO **[14]**

i. Explain onboard connectivity with Transparent processing
ii. Write in detail about Coverage and Frequency Consideration
iii. Write a note on satellite orbits.

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

2] (101) Bachelor of Engineering (84049) Satellite Communication Part 4 SEM 7