

B.Tech IV Year I Semester (R20) Regular Examinations December/January 2024

SATELLITE COMMUNICATIONS
(Electronics & Communication Engineering)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
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| (a) Give the expressions for orbital period and orbital velocity. | 2M |
| (b) Define orbital correction. | 2M |
| (c) Define space craft integration. | 2M |
| (d) Which types of antennas are most commonly used for satellites? | 2M |
| (e) Define random access technique. | 2M |
| (f) Write advantages, disadvantages of FDMA. | 2M |
| (g) Define satellite link design standards. | 2M |
| (h) Write applications of DOMSAT. | 2M |
| (i) What is meant by antenna tracking? | 2M |
| (j) Write the earth station configurations. | 2M |

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

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| 2 | (a) Explain about the Orbital elements. | 5M |
| | (b) Discuss about Attitude and Orbit control system. | 5M |
| OR | | |
| 3 | (a) Illustrate the multistage rocket launchers and their performance. | 5M |
| | (b) Write Tracking Techniques, and explain each in detail. | 5M |
| 4 | (a) What are the various sub systems presented in space craft? Explain each sub system function. | 6M |
| | (b) If three sub systems are connected in parallel having the reliability values 0.9, 0.8 and 0.7. Find the overall reliability of parallel system. Which type of connection is more preferable in space craft system? | 4M |
| OR | | |
| 5 | Explain about the elements of Communication Satellite design. | 10M |
| 6 | (a) Explain the operation principle of multiple access techniques. | 4M |
| | (b) Draw the structure and explain the operation of FDMA. | 6M |
| OR | | |
| 7 | (a) Draw the structure and explain the operation of TDMA. | 5M |
| | (b) Write advantages, disadvantages and applications of CDMA. | 5M |
| 8 | (a) What are the performance requirements and standards in satellite link design? | 5M |
| | (b) Write the differences between INTELSAT and INSAT. | 5M |
| OR | | |
| 9 | (a) Discuss about Satellite based personal communication. | 5M |
| | (b) Discuss about INTELSAT satellite in detail. | 5M |
| 10 | Draw the Block diagram of earth station and explain each block. | 10M |
| OR | | |
| 11 | Explain about satellite broadcasting. | 10M |
