ANTENNAS AND PROPAGATION
Examples of examination questions

1. Sources of radiation. The principle of similarity. The principle of reciprocity
2. Field regions (zones) around an antenna. Use the Hertz dipole as an example
3. Characteristics of the plane wave. Types of polarization
4. Basic parameters of antennas.
5. The antenna radiation pattern and different ways of its presentation
6. The electromagnetic field In the far zone of the Hertz dipole; the radiation pattern
7. Basic parameters the Hertz dipole
8. The radiation field of a thin symmetrical vibrator
9. Radiation patterns of symmetrical wire antennas
10. Characteristics of a short dipole
11. The input impedance of a symmetric dipole. Shortening (length correction) factor
12. Method of images. Real soil parameters
13. Radiation patterns of horizontal and vertical symmetric vibrator above ground
14. Properties of the vertical unbalanced vibrator (monopole) above ground
15. Ground plane (GP) antennas
16. Feeding dipole antennas using symmetrical (balanced) transmission lines
17. Feeding dipole antennas using unbalanced transmission lines. Antenna baluns
18. Summation of fields. The individual and group characteristics (the array factor)
19. Radiation of the linear antenna array
20. The rectangular antenna array. Features of antenna arrays
21. Phased antenna arrays
22. Antennas with resonant passive elements. Yagi-Uda antennas
23. Radiation of evenly illuminated rectangular and circular apertures
24. The impact of uneven distribution of the amplitude and phase in the aperture on the radiation pattern
25. Horn antennas. H-type sectoral horn
26. Basic antennas with parabolic reflectors. Optimization of their geometrical proportion
27. Metal lens antennas
28. Luneberg lens antennas. Fresnel lens antennas