**Reg. No. \_\_\_\_\_\_\_\_**

**Karunya University**

**(Karunya Institute of Technology and Sciences)**

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination - June 2011**

**Subject Title: ANTENNAS AND WAVE PROPAGATION Time: 3 hours**

**Subject Code: EC282 Maximum Marks: 100**

#### **Answer ALL questions**

**PART – A (10 x 1 = 10 MARKS)**

1. Omni directional antenna transmits in \_\_\_\_\_\_\_\_\_ direction.

2. What is the value of resistance a of λ/2 dipole?

3. Write the relation between gain and directivity.

4. Name two modes of operation of helical antenna.

5. Which is active element in Yagi-Uda antenna?

6. What is the other name for traveling wave antenna?

7. Name the different types of lens antenna.

8. Write the impedance relation between slot and complementary dipole.

9. Name three ways of propagation in atmosphere.

10. What is the value of Gyro frequency?

**PART – B (5 x 3 = 15 MARKS)**

11. Draw the electric and magnetic fields around dipole.

12. Compare directive gain and directivity.

13. Draw the structure and radiation pattern of Rhombic antenna.

14. Write about different ways of feeding slot antenna.

15. Define skip distance and MUF.

**PART – C (5 x 15 = 75 MARKS)**

16. Derive the equation for the power radiated and its radiation resistance of a λ/2 wave dipole.

(OR)

17. a. Derive the equation for retarded vector potential. (7)

b. Write short notes on capacitance hat and loading coils for short antennas. (8)

18. Explain with diagram the normal and axial mode of operation of Helical antenna.

(OR)

19. Derive the equation for array of two point sources of same amplitude and phase. Draw its radiation pattern.

20. Explain the working principle and construction of Log periodic antenna.

(OR)

21. Explain the working principle and construction of Yagi-Uda antenna.

22. Derive the equation for radiation from the open end of a coaxial line.

(OR)

23. Write about reflector type of antenna used for microwave signal propagation.

[P.T.O]

24. Write about different layers in the ionosphere during day and night. Explain refraction and reflection of sky waves by ionosphere**.**

(OR)

25. Write about space wave and **v**ariation of the field strength as a function of distance. Also explain the effect of curvature of an ideal earth.