**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: GENETIC ENGINEERING Time: 3 hours**

**Subject Code: 09BT214 Maximum Marks: 100**

#### **Answer ALL questions**

**PART – A (10 x 1 = 10 MARKS)**

1. What do you mean by genetic engineering?

2. What do you mean by three-letter abbreviation for restriction enzyme nomenclature?

3. What are plasmids?

4. Define Gene cloning?

5. What is cDNA?

6. What are the characteristics of RNase H method during cDNA technology?

7. What is site directed mutagenesis?

8. What are the characteristics of Taq polymerase?

9. Define a vaccine.

10. What is IVF?

**PART – B (5 x 3 = 15 MARKS)**

11. How is restriction- modification function performed by type-I restriction enzyme?

12. What are DNA probes? Write their applications.

13. What is the role of lac Z gene in recombinant lambda phage introduction?

14. What are the limitations of PCR?

15. Explain Embryo transfer technology.

**PART – C (5 x 15 = 75 MARKS)**

16. What do you mean by restriction endonuclease? Classify different types of restriction enzymes. Briefly describe their mechanisms of action.

(OR)

17. Describe the genetic elements that control gene expression.

18. What are the different methods of joining two DNA molecules? Explain.

(OR)

19. Give the properties of lambda vectors. Brief out the advantages of phage vectors over plasmid vectors.

20. Define cDNA library. Explain how cDNA libraries are constructed.

(OR)

21. Define genomic library. Explain how genomic libraries are constructed.

22. Write the principle, method and applications of Nested PCR and inverse PCR.

(OR)

23. Explain: a. Taqman assay b. Molecular beacons (7+8)

24. Discuss in detail on recombinant cytokines and antibodies. Add a note on its applications.

(OR)

25. What is gene therapy? What are the types of gene therapy? Write their applications.