**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: METABOLIC REGULATIONS AND ENGINEERING Time: 3 hours**

**Subject Code: 10BT304 Maximum Marks: 100**

**Answer ALL questions (5 x 20 = 100 Marks)**

1. **Compulsory**:

a. Explain co-metabolism. Why is it important in microbial modifications of many chemicals? (10)

b. What are the factors affecting bioconversion. (6)

c. Discuss about the applications of bioconversion. (4)

2. a. What is metabolic flux analysis and their role in integration of anabolism and catabolic pathways? (10)

b. What are the criteria to be employed in control of metabolic end products? (10)

(OR)

3. a. Describe the different strain improvement methods employed in increasing the yield of a product using suitable examples. (12)

b. Discuss in brief about Gene Dosage. (8)

4. a. Explain the mechanism of induction and repression with reference to lac operon. What is CAP and their regulatory role in lac operon? (10)

b. Explain the following (i) cumulative feedback regulation (ii) Alteration of feedback regulation. (4+6)

(OR)

5. a. Describe any three techniques employed in the isolation of auxotrophic mutant strains.

(12)

b. Explain the uptake of nutrients by active transport and group translocation. (8)

6. Elucidate the biosynthesis and production process of (i) tryptophan (ii) lysine. (10+10)

(OR)

7. a. Describe the commercial production process of ethanol. (10)

b. What is the regulatory aspect in citric acid production? Why certain organisms produce citric acid in large quantity. (10)

8. a. Describe the biosynthesis and production process of Streptomycin. (10)

b. Discuss the method of production of vitamin B12 and its recovery. (10)

(OR)

9. a. Describe the different regulatory methods employed in secondary metabolite. Add a note on trophophase- idiophase relationship. (12)

b. Discuss in detail about Mycotoxins. (8)