

Code: R7412311

R07

B.Tech IV Year I Semester (R07) Supplementary Examinations, May 2013

**METABOLIC ENGINEERING**

(Biotechnology)

Time: 3 hours

Max. Marks: 80

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Write about basic concepts of metabolic engineering.  
(b) Explain Jacob/Monod model and its regulation in detail.
- 2 (a) Describe pathway of L-lysine synthesis.  
(b) Explain regulation at enzyme level, about synthesis of amino acid.
- 3 (a) What are secondary metabolites? Explain regulation of secondary metabolic pathways.  
(b) Describe precursor effects during biosynthesis of secondary metabolites.
- 4 (a) Explain about bioconversions and write in detail about factors affecting bioconversions.  
(b) Write about product inhibition along with an example.
- 5 (a) How strains can be improved genetically? Explain with example.  
(b) Describe about metabolic pathway manipulations to improve fermentation.
- 6 (a) Describe about metabolic flux distribution in detail.  
(b) Explain metabolic flux analysis.
- 7 (a) Describe metabolic pathway modeling.  
(b) Explain about analysis of metabolic control.
- 8 (a) Write about applications of metabolic engineering in pharmaceuticals.  
(b) Describe applications of metabolic engineering in food technology.

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