

**M.TECH DEGREE EXAMINATIONS: APRIL/MAY 2014**

(Regulation 2009)

Third Semester

**BIOTECHNOLOGY**

BTY564: Molecular Therapeutics

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART B (10 x 2 = 20 Marks)**

1. Comment on limitations of *ex vivo* gene therapy
2. Nanoparticles are considered to be better gene delivery tools-Justify.
3. List essential properties of biomaterials used for tissue engineering.
4. Compare embryonic stem cells with cancerous cells.
5. Give two examples for recombinant therapeutic proteins that are available in Indian market.
6. What do you mean by insulin resistance?
7. Distinguish MAbs and Polyclonal antibodies.
8. Examine the role of immunosuppressors in organ transplantation.
9. Comment on the role of Institutional Animal Ethics Committee.
10. What is RNA interference?

**PART C (5 x 16 = 80 Marks)**

11. a) What are liposomes? Explain the composition and mechanism involved in liposome mediated gene delivery. (2+14)

**(OR)**

- b) Discuss various types of inherited genetic diseases and their treatment using gene therapy. (8+8)

12. a) Discuss the properties of stem cells and their applications in tissue engineering.

**(OR)**

- b) Explain embryonic and adult stem cells with respect to their source, properties, limitations.

13. a) Elaborate on the role of insulin analogs in maintaining sugar level in diabetic patients.

**(OR)**

- b) Elaborate on blood clotting mechanism and applications of streptokinase in thrombosis.

14. a) (i) Create the follow chart for the production monoclonal antibody production under in vitro conditions. (10)

- (ii) List the advantages and limitations of MAbs. (6)

**(OR)**

- b) Explain the role of recombinant vaccines for treatment of diseases with one example.

15. a) Elaborate the steps involved in antisense therapy in silencing gene expression.

**(OR)**

- b) Discuss the issues related to ethical issues of cloning of animals.

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