

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT  
MID SEMESTER EXAMINATION-2015  
M. Tech. II Semester

COURSE CODE: 14M11BT212

MAX. MARKS: 30

COURSE NAME: Immunotechnology

COURSE CREDITS: 03

MAX. TIME: 2 HRS

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Note: All questions are compulsory.

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**Q1. Justify/explain each of the following: [1X 6 = 6]**

- i. Sensing the missing-self is a means to destroy self-altered cells.
- ii. Somatic Hyper-mutation contributes towards shaping diversity of B cell repertoire.
- iii. Selection of immune cells for self-reactivity is a critical process.
- iv. Allelic exclusion and specificity of immune cells are tightly linked.
- v. Self-MHC restriction is crucial for T cell/ B cell functionality? Why or why not?
- vi. Antigen processing in context of exogenous versus endogenous antigens.

**Q2. Answer each of the following: [3X 3 = 9]**

- i. "Distinct epitopes in combination with distinct MHCs elicit activation of specific immune cells" Is the statement true? Give the logistics?
- ii. Briefly describe the events involved in an inflammatory reaction? Immune system will work better or worse if this process would not have existed?
- iii. "MHC- polymorphism is an evolutionarily relevant phenomenon to counteract a vast array of antigens we are exposed to, on daily basis". Do you agree? Why or why not?

**Q3. Answer each of the following with appropriate illustrations and examples: [5X 3 = 15]**

- i. "Biophysical application of the phenomenon of fluorescence has contributed tremendously in our ability to study biological processes". What do you understand by "fluorescence"? How this concept has been applied in different techniques widely used to study Immune-biology?
- ii. "Antibodies have vast diagnostic and therapeutic applications" How do you envision their use for the said purpose? Support your answer with appropriate examples.
- iii. "Innate and adaptive immunity act in cooperative and interdependent ways to protect the host". Specify the collaborative functional aspects of these two major arms of immune system with appropriate illustrations?