

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATION- FEBRUARY -2018

B.Tech 4th Semester

COURSE CODE: 15B11BI411

MAX. MARKS: 15

COURSE NAME: Genetic Engineering and Genomics

COURSE CREDITS: 03

MAX. TIME: 1 HRS

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q.1

1x6=6 (20 minutes)

- a. Genetic modification of plants and domesticated animal is being done since ages. What makes genetic engineering different?
- b. Below is given four nucleotides of 8bp restriction sites of hypothetical Type II restriction enzyme. Write the full restriction site. 5' •••• T C A G 3'
- c. If the hypothetical Type II restriction enzyme makes cut after A from 3' end, write the sequence of fragments? What type of overhangs the fragment would have.
- d. Suppose that a geneticist discovers a new restriction enzyme in the bacterium *Aeromonas ranidae* strain Ts29. This restriction enzyme is the second to be isolated from this bacterial species. Using the standard convention for abbreviating restriction enzymes, give this new restriction enzyme a name.
- e. Why cohesive end ligation is efficient and specific, but blunt end ligation is not so?
- f. How re-circularization of plasmid can be prevented during recombinant DNA construction?

Q.2

2x2.5=5 (20 minutes)

- I. What do you understand by genomics? Only enlist the subareas of structural and functional genomics and briefly explain DNA microarrays.
- II. Give any four examples of biopharmaceuticals being produced now days through genetic engineering. Argue in by citing a suitable example that genetically engineered therapeutic proteins can offer advantage over native proteins.

Q.3 Briefly discuss the steps involved in Steps involved in Process of Genetic Engineering.

4 (20 minutes)