

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT  
END TERM EXAM (MAY-2015)

B.Tech. BT VI Sem

COURSE CODE: 10B11BT612

MAX. TIME: 3 Hours

COURSE NAME: Food and Agricultural Biotechnology

MAX. MARKS: 45

COURSE CREDITS: 4

Note: All questions are compulsory.

Section A

(Marks: 1x10=10)

Q1. Answer the following in brief

- i. What is satellite RNA protection?
- ii. Write about Monsanto's new leaf potato.
- iii. How biofertilizers work? Give example of a symbiotic N<sub>2</sub> fixing bacterium.
- iv. How ribosomal inactivating protein act as plant defense proteins?
- v. Give three examples of defensins along with their source organisms.
- vi. PEF is a thermal process of food preservation (T/F) Explain with the principle.
- vii. Name two probiotic foods from Amul along with the probiotic culture used.
- viii. Prebiotics aids in the growth of probiotics (T/F). Justify your answer.
- ix. Do NSLAB form a part of starter culture? Give some examples of NSLAB.
- x. What are the differences between class I and Class II preservatives? Give some examples in each category.

Section B

(Marks: 3x5=15)

2. Discuss development of potato late blight resistant varieties Bionica, Toluca and BASF's Fortuna and compare the contrast between approaches and relative advantages of Fortuna.
3. How the dairy starters are classified into different categories. Explain your answer with examples of lactic cultures in each category. What are the advantages of multiple strain starters over mixed strain starter?
4. Enlist different plant pathogen defense systems and discuss inducible system in detail with emphasis on range of elicitors and response of plants.
5. a) What is the effect of exposure to air on Eh of food? Illustrate the effect by citing an appropriate example  
b) You are given with two types of food material: wheat grain and wheat flour. Enlist the extrinsic and intrinsic factors which may lead to spoilage of both?

6. You have observed an antimicrobial activity in a supernatant of lactic culture grown in MRS broth. What could be the possible reasons of this activity? How would you determine that which component of the supernatant possess this activity?

**Section C**

**(Marks: 5x4=20)**

7. Let you are working as tomato breeder for accompany and interested in developing a variety resistant to buckeye rot. Resistant trait for this disease has been found in a wild type variety. It was also observed that when it is crossed with recipient the total solid content of fruits of resulting progeny, is quite low even after many generations of back crossing with recipient parent. State and outline a strategy to scale down the breeding program and remove the linkage drag.
8. Martin et al 2008 developed transgenic tomato with high anthocyanin content by expression of transcription factors. Give an account of important elements of their expression cassette emphasizing on functions and their source. Also throw a light on utility of transcription factors to modulate such metabolic pathways.
9. a) Do we have established HACCP Guidelines and plans to use in a food Industry? Describe the principles involved alongwith the each stage of manufacturing of yoghurt.  
b) The algal SCPs are associated with some factors which impair their usefulness. What are those factors? Despite of those factors why other microbial groups are still not well popular as SCP?
10. a) Is calf the only source of milk clotting enzyme? What are the other sources, if any. Discuss the advantages and disadvantages of all sources of milk clotting enzyme  
b) What are the suggested mechanisms by which probiotics exert their beneficial effect?