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TEST-3 EXAMINATION- FEBRUARY -2017

B.Tech/ M.Tech 8th, 4th Semester

COURSE CODE: 10BII BT 612 MAX. MARKS:35

COURSE NAME: Food and Agricultural Biotechnology

COURSE CREDITS: 04 MAX. TIME: 2 Hrs

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

Q. 1 2x6=12

a. What is significance of food additives in the foods? What are the criteria for selecting food additives?
b. What are the contributory factors responsible for characteristic flavour and aroma in different cheese? Explain those metabolic processes occurring during cheese ripening
c. Explain in brief a) gluten b) edible packaging materials c) Microfiltration
d. Why it may be extremely difficult to select for multiple genes for same traits?
e. What type of biological processes are targets of herbicides? Enlist at least five such processes.
f. Why insect resistant crops are required, given the fact that uses of insecticidal chemicals effectively prevent the economical losses?

Q.2 3x4=12

A. You have isolated an unknown lactic acid bacterium from fermented food. How you will make sure that the culture could be a potential probiotic candidate?

B. Write a short note on adoption and environmental impact of herbicide tolerant crops

C. Briefly write about utility, mechanism of action and promising sources of following genes/enzymes: bar gene, proteinase inhibitors, lectins, Insect chitinases

D. Why the strategy of using mutated EPSPS gene from bacterial sources in development of glyphosate resistance was not successful in first attempt. Mention about the solution adopted and sources of mutated EPSPS gene used in Monsanto's current dicotyledonous and monocotyledonous glyphosate tolerant plants.

Q.3

What are advantages of assisted selection? Discuss how marker assisted selection is used in backcross breeding highlighting foreground selection and background selection approaches. Cite a suitable example. 5

Q.4

Write a comprehensive note on BT toxin highlighting following points: i) Discovery ii) General characteristics and structure iii) Classification iv) Mode of action v) Specificity 6