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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- JUNE -2016

B.Tech. VIth Semester

COURSE CODE: 10B11BT612 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 Answer following questions 10X2=20

1. What is pre-requisite to apply marker assisted selection? Why gene pyramiding is extremely difficult to achieve using phenotypic selection?
2. Why herbicide tolerant (HT) crops varieties are required? What indirect effects could HT crops have on the herbicide usage and environment? Support your answer with arguments and data.
3. What is BT toxin? Why it is called as δ-endo toxin and crystal protein? Why different classes of BT –toxin are specifically toxic to different orders of insects?
4. What risk factors contribute towards rapid evolution of insect pest resistant to BT toxin?
5. Mention any two transgenic crops which have been discontinued and reason to do so.
6. Explain how resistant insects could appear rapidly in Bt field. What is the role of refuge crop in management of BT resistance?
7. What was monarch butterfly affair?
8. Explain the significance of lactoperoxidase system in preservation of milk.
9. Enlist the criteria to be followed for the proper selection of a culture as probiotic candidate.
10. Discuss various schemes for national nutrition program under GAIN project.

Q.2 Explain four different strategies for engineering herbicide tolerance in plants. Discuss the development of glyphosate tolerance using mutant version of EPSPS highlighting on sources of genes, problems encountered and solutions adopted which ultimately lead to current range of glyphosate tolerant crops. 5

Q.3 Explain how marker assisted selection is useful in scaling down of breeding experiment, selection at seedling stage, more precise and accurate. 3

Q.4 How following gene products are inscecticidal against the target insects. Give an exapmle of most promissing sources in each case. 1) Proteinase inhibitors 2) Lectins 3) Insect Chitinases 3

Q.5 Food additives are generally added in the food to enhance the flavor color and consumer acceptance, for application of food additives, answer the following: a) Criteria for selection of food additives b) Significance of E numbers c) Examples of sweeteners and coloring agents d) Impact of food additives on enhancement of nutritional values of the food 4