

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III • EXAMINATION – WINTER • 2014

Subject Code: 131402

Date: 01-01-2015

Subject Name: Basic Food Microbiology

Time: 02.30 pm - 05.00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe the difference between gram+ve and gram -ve bacteria. 07
(b) Describe the growth phases of bacterial growth. Why the growth curve is known as S-shaped/sigmoid curve? 07
- Q.2** (a) Describe any three dairy products along with the role of microorganisms in preparation of each product. 07
(b) Describe the contributions of Robert Koch. Enlist the Koch postulates which help in establishing a causative of a particular disease. 07
- OR**
- (b) Draw a schematic diagram depicting parts of a bright field compound microscope. 07
- Q.3** (a) Draw a diagram flowchart to depict the sporulation in bacteria. 07
(b) Comment on types of microbial growth media used for routine subculturing and isolation of microorganisms. 07
- OR**
- Q.3** (a) Describe how glycerol stocks are prepared in order to preserve microorganisms at low temperature. Why cryophilization is preferred to spray drying while preserving microorganisms? 07
(b) Describe various methods of to control microorganisms using any physical and chemical agents. 07
- Q.4** (a) Describe Griffith experiment to demonstrate bacterial transformation of "R" into "S" strain. 07
(b) How serological characteristics are used in ELISA? What is the role of primary and secondary antibody in ELISA 07
- OR**
- Q.4** (a) What is plasmid? How plasmids are transferred from one bacterium to another through conjugation? 07
(b) Draw a diagram to depict a typical PCR cycle. What is the significance of Taq polymerase? 07
- Q.5** (a) Describe the role of intrinsic and extrinsic parameters affecting microbial growth in foods 07
(b) Draw a diagram to depict the growth of microorganism in broth in test tube as per their affinity for oxygen. 07
- OR**
- Q.5** (a) Describe the steps of gram staining. Why gram staining is also known as differential staining? 07
(b) Draw a flowchart to depict the coliform test used to determine whether the water is drinkable or not. 07