

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V • EXAMINATION – SUMMER 2014

Subject Code: 153605

Date: 19-06-2014

Subject Name: Microbiology and foundation technology of liquid & topical

Time: 10:30 am to 01:00 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) Draw a flow chart for large scale manufacturing of simple syrup starting from raw materials to the final product and also discuss the same. Indicate the quality control parameters at various steps during processing. (Note: One of the constituents of simple syrup is purified water. The entire large scale manufacturing of “purified water” with the flow chart is also expected) **07**
- (b) Explain the terms sanitization, asepsis, sterilization, and disinfection. Explain the kinds of bacterial deaths with appropriate plots. **07**
- Q.2** (a) Define a suspension and list the formulation ingredients. Discuss the large scale manufacturing of a suspension (all three types) carried out using an educator. **07**
- (b) What are the first-line chemical defenses of the body? Explain the process of phagocytosis with the help of a figure **07**
- OR**
- (b) What is taxonomy? Discuss the ‘Nucleic acid hybridization method’ used to determine the DNA base composition. **07**
- Q.3** (a) Discuss in detail the following quality control parameters for suspensions: sedimentation, particle size, assay, content uniformity, stability and preservative efficacy. **07**
- (b) Define antigens and antibodies. Discuss the structure of an antigen briefly indicating ‘epitopes’ and their role. Also discuss the structure of an antibody with the help of a schematic and describe its various parts. **07**
- OR**
- Q.3** (a) Discuss in detail the following quality control parameters for emulsions: phase separation, globule size, assay, content uniformity, stability and preservative efficacy **07**
- (b) What are the factors affecting sterilization? What would be the effect on sterilization of the following: (i) increase in temperature (ii) increase in initial bacterial number? List the various methods of bacterial preservation indicating the main feature of each. **07**
- Q.4** (a) What are the ideal characteristics of a suppository base? List the six kinds of suppository bases. What are the advantages of suppositories? **07**
- (b) List any five methods of measuring microbial growth. Discuss the serial dilution method in detail with the help of figures. **07**
- OR**
- Q.4** (a) Discuss in the role of wetting agents and suspending agents in suspensions based on their function, usage and characteristics. **07**
- (b) Explain the four phases of microbial growth giving details of each with the help of a graph. **07**

- Q.5** (a) What is creaming and cracking of emulsions and what could be done to avoid it? **07**
- (b) List any five physical and five chemical agents used for sterilization, explaining the mechanism of action each. Draw a schematic of an autoclave. **07**

OR

- Q.5** (a) Differentiate between (i) pastes and ointments and (ii) ear drops and nasal drops (four points each) **07**
- (b) Explain the complete process of immunity building indicating the role of all types of WBC's (starting from an infection for the first time to how it is tackled henceforth). **07**