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Total Number of Pages: 02

**B.TECH**  
**PBT31104**

**3<sup>rd</sup> Semester Regular Examination 2016-17**

**MICROBIOLOGY**

**BRANCH: Biotechnology**

**Time: 3 Hours**

**Max Marks: 100**

**Q.CODE: Y501**

**Answer Part-A which is compulsory and any four from Part-B.  
The figures in the right hand margin indicate marks.**

**Part – A (Answer all the questions)**

**Q1 Answer the following questions: *multiple type or dash fill up type* (2 x 10)**

- a) Small pox vaccine was first discovered by a. Robert Koch b. Louis Pasteur c. Lister d. Edward Jenner
- b) Salt and sugar preserve foods because they a. Make them acid b. Produce a hypotonic environment c. Deplete nutrients d. Produce a hypertonic environment
- c) Disease that affects many people at different countries is termed as a. Sporadic b. Pandemic c. Epidemic d. Endem
- d) Direct microscopic count can be done with the aid of a. Neuberg chamber b. Anaerobic chamber c. Mineral oil d. Olive oil
- e) A mutation that produces termination codon is a. Mis-sense mutation b. Neutral mutation c. Non-sense mutation d. Reverse mutation
- f) The following organisms have been proposed as sources of single cell protein a. Bacteria b. Yeasts c. Algae d. All the three
- g) Biofilms are Often First Colonized by Organisms that Have a Thick \_\_\_\_\_.
- h) The Term \_\_\_\_\_ is Typically Used for Viruses that Infect Bacteria.
- i) As Defined by Koch, an Individual Cell that Gives Rise to Identical Progency Cells is Called the \_\_\_\_\_.
- j) Lichen is the symbiotic association of \_\_\_\_\_.

**Q2 Answer the following questions: Short answer type (2 x 10)**

- a) Calculate specific growth rate, if the culture contains  $10^4$  cells/ml at start and  $10^8$  cells/ml 4 hours later.
- b) Name two bacterial diseases associated with upper respiratory tract infection.
- c) What is conjugation?
- d) Explain the principle of bright field microscopy.
- e) What is the mode of action of tetracycline?
- f) What is Enderdoudorf's pathway?
- g) What is a halotolerant bacteria?
- h) What is the nature of capsule.
- i) What are cyanobacteria?
- j) Explain principle of vaccine.

**Part – B (Answer any four questions)**

- Q3 a)** Explain principle of Gram staining in detail. Differentiate between the gram +ve and gram –ve bacteria. **(10)**
- b)** Describe the microorganisms associated with fermented milk product and discuss any one fermented milk product? **(5)**
- Q4 a)** What is generalized transduction? What will be the final result, if conjugation takes place between  $F^+$  x  $F^-$  stains? **(10)**
- b)** What are microbial media? Describe different types of microbial media with suitable examples. **(5)**
- Q5 a)** Discuss structure and classification of viruses with suitable examples? **(10)**
- b)** Explain different staining procedures for bacteria. **(5)**
- Q6 a)** Explain glyoxalate pathway with proper explanation of its importance. **(10)**
- b)** Explain Bacteriological analysis of water & water treatment. **(5)**
- Q7 a)** What is mutation? Describe difference type of mutation. **(10)**
- b)** Explain Solid state fermentation. **(5)**
- Q8 a)** Describes the biological  $N_2$  fixation with proper explanation of its importance? **(10)**
- b)** Explain different skin diseases caused by fungi. **(5)**
- Q9 a)** What is sterilization? Describe methods of sterilization. **(10)**
- b)** Explain different types of vaccine. **(5)**