

Total No. of Questions :5]

SEAT No. :

[Total No. of Pages :3

**P717**

**[5117] - 7**

**F.Y.B.Sc.**

**BIOTECHNOLOGY**

**Bb-107:Microbiology**

**(2013 Pattern)**

*Time : 3 Hours]*

*[Max. Marks :80*

*Instructions to the candidates:*

- 1) All questions are compulsory.*
- 2) Figures to right indicate full marks.*
- 3) Use of colour pencils restricted to diagrams.*

**Q1)** Attempt the following in two-three sentences:

**[8×2=16]**

- a) Obligate aerobe shows the presence (+) and absence (–) of the following enzyme
  - i) SOD (+) Catalase (+)
  - ii) SOD (+) Catalase (–)
  - iii) SOD (–) Catalase (+)
  - iv) SOD (–) Catalase (–)
- b) Sketch the bacterial colony morphology growing on agar plate exhibiting following:  
Form: Spindle; Elevation: Flat; Margin: Undulate.
- c) State any two characters of *Aspergillus* which characterize it as fungi.
- d) With example define selective media.
- e) Enlist two names of acidic stains used in Microbiology laboratory.
- f) Define: ultrahigh-temperature (UHT).
- g) Distinguish between: sanitization and sterilization.
- h) Give names of two pathogens that cause disease in plants and animals respectively.

**P.T.O.**

**Q2)** Attempt any four of the following:

**[4×4=16]**

- a) Which disinfectants or antiseptics would be used to treat the following: oral thermometer, laboratory bench top, drinking water, patch of skin before surgery, small medical instruments (probes, forceps, etc.)?
- b) Until relatively recently, spoiled milk was responsible for a significant proportion of infant death.
  - i) Why is untreated milk easily spoiled?
  - ii) Why is boiling milk over prolonged periods not desirable?
- c) Describe and contrast the ways in which flagella and cilia propel microorganisms through the water.
- d) Describe the process of Biofilm formation.
- e) Fungi lead a saprophytic mode of life, justify.
- f) What do understand by Chemolithoautotrophy?

**Q3)** Write self-explanatory notes on any four of the following:

**[4×4=16]**

- a) Lipopolysaccharide.
- b) Inclusion bodies of bacteria.
- c) Whittaker's system of Classification.
- d) Mycorrhiza.
- e) Freeze drying techniques.
- f) Bacterial flagella.

**Q4)** Attempt any two of the following: **[2×8=16]**

- a) Distinguish between acid fast and non-acid fast staining.
- b) What are depth filters and membrane filters, and how are they used to sterilize liquids?
- c) Describe the operation of a biological safety cabinet.

**Q5)** Describe the following kinds of media and their uses: defined or synthetic media, complex media, general purpose media, enriched media, selective media, and differential media. Give an example of each kind. **[16]**

OR

Explain glycolysis and TCA cycle in detail. Add a note on its energetics.

