

**B. SC. BIOTECHNOLOGY**  
**Second Semester**  
**Microbiology-II**  
**(BBT - 07)**

**Duration: 3Hrs.**

**Full Marks: 70**

**(PART-B: Descriptive)**

**Duration: 2 hrs. 40 mins.**

**Marks: 50**

**1. Answer any two questions from the following**

- a) Define recombination in bacteria. Give a diagrammatic description of the transformation process in bacteria. **2+5=7**
- b) Describe briefly the method of cultivation of animal viruses. Add a note on human and animal diseases caused by prion. **5+2=7**
- c) Give a comparative account between Mycoplasma and Chlamydae. **7**
- d) State a few examples of edible and poisonous mushroom. Write down the method for edible mushroom production. Write in short why the alga Dunillia salina is used for glycerol production? **2+3+2=7**

**2. Answer any two questions from the following**

- a) What do you understand by auto-immune diseases? Mention some of the auto-immunity problem in men with the organ affected. Add a brief note on the different cells and organs involved in the immune system. **2+ 4+4=10**
- b) What do you mean by Single-Cell-Protein (SCP)? Discuss briefly the production process of SCP mentioning the various types of microbes employed in the process. **2+8=10**
- c) Discuss the various phases of isolation and purification of plant viruses. Why the study of mode of transmission in plant viruses is important? **4+4+2=10**

**3. Write brief notes on the following (any four):**

**4x4=16**

- a) Sexduction (with diagram)
- b) Hypersensitivity
- c) Structure of TMV (with diagram)
- d) Advantages and Disadvantages of SCP production
- e) Bioleaching
- f) Pathogenicity of Rickettsia

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*(The figures in the margin indicate full marks for the questions)*

**Duration: 20 minutes**

**Marks – 20**

**PART A- Objective Type**

**1. Choose the correct option for the following questions:**

**1x20=20**

- i. Fertility factor in bacteria was discovered by \_\_\_\_\_.
- a) Francois Jacob & Elie L. Wollman      b) William Hayes  
c) Tatum & Lederberg                      d) none of the above
- ii. \_\_\_\_\_ is a hypersensitivity problem.
- a) Q fever    b) Polyarteritis nodosa  
c) Hay fever    d) Arthritis
- iii. Mumps virus belongs to the group of virus with \_\_\_\_\_ symmetry.
- a) helical    b) complex  
c) cubic    d) none of the above
- iv. Frederick Sanger is associated with the discovery of \_\_\_\_\_.
- a) jumping gene                                    b) overlapping gene  
c) pseudo gene                                    d) all of the above
- v. The largest known viroid is \_\_\_\_\_.
- a) Potato spindle tuber viroid                b) Citrus exocortis viroid  
c) Tobacco black ring viroid                 d) Cucumber pale-fruit viroid
- vi. Prion is also known as \_\_\_\_\_.
- a) satellite virus                                    b) slow virus  
c) phase virus                                      d) none of the above
- vii. Partial diploid formed during sexduction is called \_\_\_\_\_.
- a) heterotroph                                      b) heterogenote  
c) heterothalloid                                 d) hybrid
- viii. Microbial process of metal recovery is termed as \_\_\_\_\_.
- a) biomineralization                            b) bioextraction  
c) biohydrometallurgy                        d) all of the above

- ix. Among the followings \_\_\_\_\_ is not a viral property.  
a) filterable b) crystallizable  
c) ultramicroscopic d) none of the above
- x. Endemic blinding trachoma in man is a \_\_\_\_\_ disease.  
a) Rickettsial b) Chlamydial  
c) Mycoplasmal d) viral
- xi. Conjugation process is confined to certain gram (-)ve bacteria only, but may be observed in gram(+)ve bacteria like \_\_\_\_\_.  
a) *Streptococcus mutans* b) *Staphylococcus aureus*  
c) *Streptococcus pneumoniae* d) *Salmonella typhimurium*
- xii. Microbe used in bioleaching should be \_\_\_\_\_.  
a) acidothermophilic b) chemotrophic  
c) metallotolerant d) all of the above
- xiii. Dependence of virusoids on its helper virus for replication and encapsidation is known as \_\_\_\_\_.  
a) parasitism b) satellitism  
c) mutualism d) commensalism
- xiv. \_\_\_\_\_ is not an autoimmune disease.  
a) polymyositis b) scleroderma  
c) polyendocrine d) none of the above
- xv. Bacteriophages were first described and named by \_\_\_\_\_.  
a) Tatum & Zinder b) Bowden & Pirie  
c) Twort & d'Herelle d) Loeffler & Frosch
- xvi. \_\_\_\_\_ is exploited for enhanced recovery of petroleum.  
a) *Xantomonas campestris* b) *Bacillus subtilis*  
c) *Pseudomonas aeruginosa* d) *Penicillium candidum*
- xvii. The term "viroid" was given by \_\_\_\_\_.  
a) Theodor O. Diener b) John W. Randle  
c) Kassanis et al d) none of the above
- xviii. The first virusoid identified was the satellite virus of \_\_\_\_\_.  
a) Tobacco black ring virus b) Tobacco mosaic virus  
c) Tobacco necrosis virus d) Tobacco ringspot virus
- xix. The only human disease thought to be caused by viroid is \_\_\_\_\_.  
a) Hepatitis A b) Hepatitis B  
c) Hepatitis C d) Hepatitis D
- xx. Hfr strain in bacteria was discovered by \_\_\_\_\_.  
a) William Hayes b) Frederick Griffith  
c) Dmitri Iwanowski d) Barbara McClintock

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