

B.Sc. (Part-I) Semester-II Examination
BIOTECHNOLOGY (R/V)
(Microbiology)

Time : Three Hours]

[Maximum Marks : 80

N.B. :— (1) All questions are compulsory.

(2) Draw well labelled diagram wherever necessary.

1. (A) Fill in the blanks :

(i) In _____ staining microbes appear colourless against dark background.

(ii) In colorimeter sample holder tube is called as _____.

(iii) *Spirulina* is used for industrial production of _____.

(iv) Nitrogen fixation means conversion of _____ into nitrogenous compounds 2

(B) Choose correct alternative :

(i) Active immunity is produced by injecting _____.

(a) Antigen

(b) Antibody

(c) Antigen-antibody complex

(d) Immunoglobulin

(ii) Halophiles prefer _____.

(a) KCl

(b) NaCl

(c) NH_4Cl

(d) CaCl_2

(iii) Heterotrophs are also called as _____.

(a) Lithotrophs

(b) Autotrophs

(c) Organotrophs

(d) Inorganotrophs

(iv) *Aspergillus* used in industry belong to _____.

(a) Algae

(b) Bacteria

(c) Rickettsia

(d) Mold 2

(C) Answer in **one** sentence :

(i) Host.

(ii) Antibiosis.

(iii) Dehydrogenation.

(iv) Resolving power. 4

2. Explain :

(a) Schaefer and Fulton's method. 4

(b) Cocci. 4

(c) Ray diagram of SEM. 4

OR

(d) Resolving power. 4

(e) Simple staining. 4

(f) Sterilization by UV light. 4

3. Describe :
- (a) Structure of flagella. 4
 - (b) Gracilicutes. 4
 - (c) Halophiles. 4
- OR**
- (d) Lithotrophs. 4
 - (e) Structure of cytoplasmic membrane. 4
 - (f) Firmicutes. 4
4. Describe in detail glycolysis. 12
- OR**
- Describe in detail Krebs cycle. 12
5. Describe role of following microbes :
- (a) *Saccharomyces cerevisiae*. 4
 - (b) *Penicillium roqueforti*. 4
 - (c) Phosphate solubilizing bacteria. 4
- OR**
- (d) Homofermentative lactobacilli. 4
 - (e) Streptomyces. 4
 - (f) Azotobacter. 4
6. Describe structure and pathogenicity of :
- (a) *Vibrio cholerae*. 4
 - (b) Epidermophyton. 4
 - (c) HIV. 4
- OR**
- (d) *Salmonella typhi*. 4
 - (e) Polio virus. 4
 - (f) Microsporium. 4
7. Describe in detail Gel electrophoresis. 12
- OR**
- Describe in detail paper chromatography. 12