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(November)

BOTANY

(Major)

Course : 303

(Microbiology and Biotechnology)

Full Marks : 48

Pass Marks : 19/14

Time : 2 hours

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

1. (a) Choose the correct answer of the following : 1×3=3
- (i) The major organism used in the microbial production of citric acid is *Penicillium notatum*/*Aspergillus niger*/*Lactobacillus delbrueckii*.
 - (ii) Gram stain was introduced by Louis Pasteur / Alfred Gram / Christian Gram.
 - (iii) During 'gene cloning' Vaccine/ Plasmid / Bacterium / Protozoa is called as 'gene taxi'.

(b) Fill in the blanks : 1×3=3

(i) _____ is a genus of bacteria that lacks a cell wall around their membranes.

(ii) The entire genetic component of an organism which includes its genes and nucleotide sequences is called _____.

(iii) _____ is an excised piece of leaf or stem tissue used in micropropagation.

(c) Write short notes on the following :

$2\frac{1}{2} \times 4 = 10$

(i) Nucleic acid contents of viruses

(ii) Autoclave

(iii) Benefits of micropropagation

(iv) DNA ligases

2. (a) What are mycoplasmas? How do they survive without a cell? Write about the reproduction of mycoplasmas. 2+3+5=10

Or

(b) What do you mean by LAB? Write about the importance of microbes in preparation of household products. 2+8=10

(3)

3. (a) Write the principle of PCR. What are the requirements of PCR to amplify the molecule of DNA? Write the role of enzymes in this process. $3+4+3=10$

Or

- (b) Write explanatory notes on the following : $5+5=10$
- (i) Recombinant DNA technology
 - (ii) Transgenic crops

4. Write short notes on any *four* of the following : $3 \times 4 = 12$

- (a) Food poisoning
- (b) Bacteriophage
- (c) Microbes and waterborne diseases
- (d) Cry proteins
- (e) Biopiracy
- (f) Preparation of PDA medium
