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**3 SEM TDC BOT M 3**

**2017**

( 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 option of the following : 1×3=3
- (i) Small parts of DNA remaining scattered in the cytoplasm of bacteria is called plasmid/bacterial chromosome/peptidoglycan.
  - (ii) The nuclear material of TMV is DNA/RNA/both DNA and RNA.
  - (iii) Incubator/centrifuge/laminar flow is an equipment for filtration.



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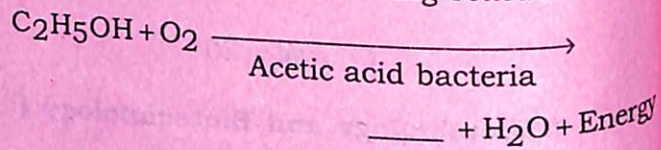
(b) Fill in the blanks :

1×3=3

(i) The transfer of DNA from one bacterium to another through a bacteriophage is known as \_\_\_\_.

(ii) The subunit of protein covering of a virus is called \_\_\_\_.

(iii) Complete the following reaction :



(c) Write short notes on the following :

2½×4=10

(i) Hot air oven

(ii) Bacterial biofertilizer

(iii) Totipotency

(iv) Somatic hybridization

2. (a) What do you mean by culture media? Explain the different types of culture media. Describe the techniques of isolation of microbes from soil. 3+3+4=10

Or

(b) What are antibiotics? How are they produced? Mention the names of few widely used antibiotics and the names of microorganisms from which they are extracted. 2+5+3=10

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( Continued )

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3. (a) What is biotechnology? Highlight the history and application of biotechnology in human welfare. Mention few related branches of biotechnology. 2+2+4+2=10

Or

(b) What is biofertilizer? Describe the different types of biofertilizers and their significance. 3+4+3=10

4. Write short notes on any four of the following : 3×4=12

(a) Milk microbiology

(b) Rhizoplane microflora

(c) Micromanipulation

(d) VAM

(e) Protoplast fusion

(f) Genetic engineering

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