



Name :
Roll No. :
Invigilator's Signature :

CS/B.Tech (FT-OLD)/SEM-6/FT-602/2013

2013

**ADVANCED FOOD MICROBIOLOGY AND
BIOTECHNOLOGY**

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

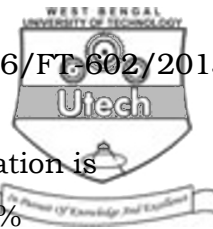
- i) Phytic acid is present in
- a) rice bran oil b) black berries
c) both (a) and (b) d) none of these.
- ii) What is the starting material for producing Cider
Vinegar ?
- a) Apple b) Malt
c) Alcohol d) None of these.
- iii) Which strain produces patulin ?
- a) Clostridium b) Staphylococcus
c) Pseudomonas d) Salmonella.

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[Turn over



- iv) The gene for BT cotton comes from
- a) *Bacillus cereus*
 - b) *Bacillus stereothermophilus*
 - c) *Bacillus thuringiensis*
 - d) *Bacillus thermobutyricum.*
- v) Water activity is an
- a) intrinsic factor
 - b) extrinsic factor
 - c) implicit factor
 - d) none of these.
- vi) Example of an anaerobic spore former is
- a) *Bacillus subtilis*
 - b) *Compylobacter jejuni*
 - c) *Escherichia coli*
 - d) none of these.
- vii) Example of a bacteria which is not of Coliform group is
- a) Salmonella
 - b) Enterobacter
 - c) Aeromonas
 - d) None of these.
- viii) Citrinin is a toxin obtained from
- a) Aspergillus
 - b) Penicillium
 - c) Both (a) and (b)
 - d) None of these.
- ix) *E. coli* is used as an index or indicator of fecal pollution since
- a) they are the most responsible bacteria among other members of Coliform to produce disease
 - b) they can be recovered with less difficulty
 - c) both (a) and (b)
 - d) none of these.



- x) Salt concentration in sauerkraut preparation is
- a) 1% – 2%
 - b) 2% – 3%
 - c) 3% – 4%
 - d) none of these.
- xi) In the production of wine from rice the method is
- a) mold fermentation followed by bacterial fermentation
 - b) bacterial fermentation followed by yeast fermentation
 - c) yeast fermentation followed by mold fermentation
 - d) none of these.

GROUP – B

(Short Answer Type Questions)

Write short notes on any *three* of the following. $3 \times 5 = 15$

- 2. Water activity
- 3. GM food
- 4. Beer spoilage
- 5. Citrinin
- 6. Tempeh.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Write the physiological and biochemical characteristics of
- a) *Clostridium botulinum*
 - b) *Escherichia coli*
 - c) *Bacillus thuringiensis*
- 5 + 5 + 5



8. a) Explain the double stranded structure of DNA with diagram.
- b) Illustrate the semi-conservative mode of replication.
- c) Give with examples the mechanism by which physical and chemical agents cause mutation. 5 + 5 + 5
9. a) What is the advantage of BT cotton over the native cotton varieties ?
- b) What are the threats of using BT cotton to the environment ?
- c) How does the BT gene perform the function ? 5 + 5 + 5
10. What is water activity ? How does it effect the microbial contamination of stored food ? How can its knowledge be used for developing preservation strategy for a food ?
- 3 + 6 + 6
11. a) Explain Orlean's process of vinegar production.
- b) Explain the name of organism and the process of preparation of two fermented products. 5 + 10

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