ADVANCED FOOD MICROBIOLOGY AND BIOTECHNOLOGY
(SEMESTER - 6)

CS/B.Tech (FT)/SEM-6/FT-602/09

1. ....
Signature of Invigilator

2. .... **Reg. No.**
Signature of the Officer-in-Charge

Roll No. of the Candidate

CS/B.Tech (FT)/SEM-6/FT-602/09

ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

ADVANCED FOOD MICROBIOLOGY AND BIOTECHNOLOGY (SEMESTER - 6)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A									Group – B			Group – C				
Question Number																***Total Marks***	***Examiner's Signature***
Marks Obtained																	

....

Head-Examiner/Co-Ordinator/Scrutineer

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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

i) Coliforms are

a) thermophilic bacteria b) mesophilic bacteria

c) psychrophilic bacteria d) thermoduric bacteria. ☐

ii) Hops are used in Beer

a) to make it nutritious b) to improve its colour

c) all of these d) none of these. ☐

iii) Kimchi is prepared from

a) milk b) meat

c) vegetable d) soyabean. ☐

iv) Tomatoes are

a) non-perishable

b) semi perishable

c) perishable. ☐

v) The principle of food preservation by drying is

a) by keeping out microorganisms

b) by removal of microorganisms

c) by killing the microorganisms

d) none of these.

vi) Microorganisms are not killed in the process of

a) canning b) irradiation

c) using chemical preservatives d) none of these.

vii) In the growth curve of bacteria, the members of bacteria decrease at a faster rate, than new cells are

a) lag phase b) negative acceleration phase

c) death phase d) none of these.

viii) Beer contains alchohol concertration

a) 40% b) 11%

c) 6% d) none of these.

ix) During the maturation of beer mainly

a) acids are formed b) alchohols are formed

c) esters are formed d) none of these.

x) Aflatoxin is produced by

a) *Penicillium expansum* b) *Bacillus subtilis*

c) *Aspergillus ochraceous* d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \infty 5 = 15$

2. What are the differences between DNA and RNA ?

3. Describe the growth curve of bacteria.

4. What characteristics should be possessed by a microbial culture to be selected for an industrial fermentation process ?

5. Write briefly about soy sauce production

6. What do you mean by "GM Food" ?

GROUP – C

(Long Answer Type Questions)

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

7. What is the role of nutrient on microbial growth ? What is intermediate moisten food ? Give three examples of intermediate food. Preservation of cereal in silo is highly dependent on moisture content. Justify. What are the roles of *Erwinia* and *Pseudomonas* on vegetable spoilage ? What are mycotoxins ? Give examples of three mycotoxin producing organisms. What is the basic principle of direct epifluorescent filter technique ? $2 + 1 + 1\frac{1}{2} + 2\frac{1}{2} + 3 + 1 + 1\frac{1}{2} + 2\frac{1}{2}$

8. What are the advantages of fermented foods ? Give flow sheet of the tempeh production. What are homo-fermentative and hetero-fermentative bacteria ? What are the major controlling factors for solid food fermentation ? 15% water content is safe for high sugar containing foods but not for fat containing foods. Why ?

$3 + 5 + 2 + 2\frac{1}{2} + 2\frac{1}{2}$

9. Briefly discuss on double stranded DNA structure. Briefly discuss on DNA transcription process. What is RDT ? Give applications of RDT in food processing.

5 + 5 + 2 + 3

10. What are the merits and demerits of single cell proteins ? How can you produce single cell protein from industrial waste materials ? Briefly discuss on mushroom preservation technique. Give examples of consumable and poisonous mushrooms (two of each). Give examples of different varieties of consumable mushrooms.

3 + 3 + 5 + 2 + 2

11. Write short notes on any *three* of the following : 3 ∞ 5

a) Polymeric chain reaction

b) Toxicity of botulin

c) Effect of E_R on microbial growth

d) Preservation techniques of beneficial microorganisms

e) Briefly mention different controlling factors for preservation of milk.

END