B.Tech.
3rd Sem.
2019

B.Tech Food Technology Roll no: _____
Semester-III Examination, 2019
Paper Title: Food Microbiology
Paper Code: BFTC-302

Time allowed: 3 hr **Max. marks: 70**

(Write Roll no. at the top immediately on receipt of question paper)
Note: Section A is compulsory, Attempt any four questions from section B.

Section A (30 marks)

Q1. Multiple choice questions/Fill in the blanks: (9M)

a. As a budding basic scientist you work in a research food microbiology laboratory and discover a chemical that removes the cell wall from bacteria but leaves the organism undamaged otherwise. Things that the bacteria will lose because of this include:

a. The ability to stain gram positive: all will look gram negative
b. The ability to move
c. The ability to have a gram stain result
d. The ability to attach to other cells

b. Columella is a structure found in:

a. Sporangium of *Rhizopus* c. Pycnidia of *Puccinia*
b. Ascus of *Penicillium* d. All of the above.

c. Major chemical compound present in bacterial endospore is:

a. Calcium tanate b. Calcium pectate c. Calcium picolinate d. Calcium phosphate

d. Which of the following is true to prevent botulism from smoked fish?

a. Fish should be heated at least 82°C for 30 min during or after smoking
b. Fish should be immediately frozen after packaging and kept frozen
c. Good sanitation should be maintained throughout production and handling
d. All of the above

e. _____ are the chief gas formers in milk.

f. Bacterial toxins that are specific for intestinal cells and cause gastroenteritis are referred to as _____.

g. Red milk usually is caused by the microorganism _____.

h. Thin surface layer of proteinaceous material outside the egg shell which serves as the first line of defense is known as _____.

i. Aflatoxin in nuts is generally produced by the microorganism _____.

Q2. Albumen is an inadequate growth medium for microbes. Comment. (3M)

Q3. Draw structure of a typical virus. Do they proliferate in foods? Justify your answer. (3M)

Q4. Enlist intrinsic parameters responsible for microbial growth? (3M)

Q5. List out chemical & chemotherapeutic agents used to control microbial growth. (3M)

Q6. Expand: HACCP, ISO, GRAS, CCP (4M)

Q7. What are street foods? What food safety measures would you recommend to a street food vendor to ensure safe food. Enumerate. (3M)

Q8. Micro-organisms are of significance in food systems as they have both beneficial as well as harmful effects" Justify the statement giving appropriate examples. (2M)

Section B (4*10=40 marks)

1. What is water activity? Explain its relation to water vapor pressure. What is the role of water activity in governing the growth of microorganisms in foods?
2. Elaborate on the microbiology of any fermented food of your choice with related microbiological defects.
3. Give a detailed account on the role of probiotics and their mode of action in providing various beneficial effects to human host.
4. What is food borne infection? Enlist factors responsible for such diseases. Name any two causative agents that produce food infections and respective ways to control them.
5. Define curing. Illustrate (using a flowchart) the chemical changes that myoglobin undergoes during cooking and curing process.
6. Write a short note on (*any two*):
   a. Spoilage defects in fruits and vegetables and their prevention
   b. Selective and differential media
   c. Culture preservation

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