P. P. SAVANI UNIVERSITY

Fifth Semester of B.Sc. Examination
December-2021
SSMB3090– Food and Dairy Microbiology –II
08.12.2021, Wednesday Time: 12:30 p.m. to 03:00 p.m. Maximum Marks: 60

Instructions:
1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

Section-I (Total Marks - 30)

Q.1 Short Questions **[10]**

1.1 Objectives **[05]**

1.1a Cereulide is the toxin produced by
- A *Vibrio parahaemolyticus*
- B Bacillus cereus
- C *Listeria monocytogenes*
- D *Escherichia coli*

1.1b *Vibrio parahaemolyticus* is naturally occurring bacterium found in
- A Clams
- B Mussels
- C Oysters
- D All of above

1.1c What is not true about hemolytic uremic syndrome (HUS).
- A increased urination
- B kidneys may stop working
- C feeling very tired
- D losing pink color in cheeks

1.1d Complications such as arthritis are observed in case of
- A Salmonella infection
- B *Shigella flexneri*
- C Yersinia Infection infection
- D All of above

1.1e Perishable food should not be left out at room temperature for
- A More than 1 hours
- B More than 2 hours
- C More than 3 hours
- D More than 5 hours

1.1f Foodborne infection is
- A caused by the ingestion of food containing live bacteria which grow and establish themselves in the human intestinal tract
- B caused by ingesting food containing toxins formed by bacteria
- C caused by the ingestion of food containing bacteria which cannot grow and establish themselves in the human intestinal tract.
- D All of above

1.1g The following tips that are part of the four steps to food safety

A clean, separate, cook, and chill
B sanitize, separate, cook, and chill
C clean, sanitize, separate, and chill
D wash, clean, sanitize, sterilize

1.1h The infants are not to feed honey before the age of 1 year.

A It is not easy to digest by them
B As it can cause infant botulism if honey is spore-contaminated
C It is not rich in nutrition
D All of above

1.1i Prevention of Shigellosis can be done by

A Practicing frequent hand washing
B Following good food safety practices
C Providing safe drinking water
D All of above

1.1j Campylobacter are bacteria

A Infect the intestinal tract
B Sometimes Infects the blood
C Both A and B
D None of them

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks) **[05]**

1.2a Give name of any two microorganism that causes foodborne intoxification.

1.2b What are chemical contaminants?

1.2c Food preservative helps to prevent food spoilage from microorganisms. (True/False)

1.2d Foodborne infection is caused by ingesting food containing toxins formed by bacteria. (True/False)

1.2e Listeria may grow slowly even at refrigeration temperatures that is the reason that people at risk should avoid the refrigerated food. (True/False)

Q.2 Short Notes (Attempt any two) **[06]**

A Write a short note on Salmonella Infection.

B What are the key facts of botulism?

C Give a note on food poisoning by *Yersinia enterocolitica.*

Q.3 Explain in detail (Attempt any two) **[14]**

A Give a detailed note on food poisoning by *Bacillus cereus.*

B Explain *Vibrio parahaemolyticus* as food poisoning agent.

C Give a detailed note on staphylococcal food poisoning.

Section-II (Total Marks - 30)

Q.1 Short Questions [10]

1.1 Objectives [05]

1.1a SYBR Green is a dye that

A binds double stranded DNA
B Binds single stranded DNA
C Binds single stranded RNA
D Binds double stranded DNA

1.1b Solid-phase cytometry combines the aspects of

A Epifluorescence microscopy and flow cytometry
B PCR and ELISA
C Epifluorescence microscopy and PCR
D ELISA and flow cytometry

1.1c Traditional culture based methods relies on

A The ability of bacteria to grow and multiply on laboratory media and form visible colonies
B Give either qualitative or quantitative information on the number and type of viable microorganisms present in the food samples
C Many food testing laboratories still relies on these methods
D All of the above

1.1d Which of the following is the rapid method to detect the pathogenic organisms?

A ELISA
B PCR
C Epifluorescence microscopy
D All of the above

1.1e Factors affecting safety of food?

A Contamination factors
B Survival factors
C Proliferating factors
D All of the above

1.1f Rapid methods for pathogens detection are

A Sensitive enough to detect pathogens that present in low numbers in the food.
B More time-consuming
C Labor intensive
D All of the above

1.1g What does Critical Control Point mean?

A The point when food handlers must start to make administrative records in the HACCP system.
B The point when steam starts to rise from food being cooked.
C Help a company to meet with relevant food law regulations
D It is a point, step or procedure at which control can be applied to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

1.1h Criteria which are defined as the acceptability of a product by ICMSF are

A A microbiological standard, regulations, guideline
B A microbiological standard specification guideline
C A microbiological regulation, specification guideline
D All of the above

1.1i Name the biological or chemical agent which is not added intentionally to food but is present in production of food?

A Pathogen
B Toxins
C Pieces of glass
D Contaminant

1.1j The polymerase chain reaction is

A It is a DNA sequencing technique.
B It is a DNA degradation technique
C It is a DNA amplification technique
D All of the above

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks) **[05]**

1.2a Define sanitization.
1.2b What are Viable but non-culturable (VBNC) microorganisms?
1.2c What is full form of FISH?
1.2d In a flow cytometer the particles are analyzed all at a time. (True or False)
1.2e Biosensor can not be used to detect food borne pathogens. (True or False)

Q.2 Short Notes (Attempt any two) **[06]**

A Give the full form of HACCP and list out the qualities of the HACCP system.
B Enlist the criteria for an ideal indicator organism.
C Enlist and explain different types of hazards.

Q.3 Explain in detail (Attempt any two) **[14]**

A Give a note on flow cytometry.
B How ELISA is being used to detect food borne pathogens?
C Explain the seven essential steps for attaining a sanitary environment.