C 23336 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2022

(CBCSS)

Food Science and Technology

FST 2C 08—FOOD ENGINEERING

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer any **four** *out of seven questions.*
Each question carries 2 *weightage.*

1. Define the term : i) Shape ; and ii) Porosity.
2. What is steam distillation ?
3. What is ohmic heating ? Where it is applied ?
4. What is unsteady state of heat transfer.
5. Define Mass Transfer.
6. Define the terms : i) Extraction ; and ii) Leaching.
7. What is high pressure technology ?

(4 × 2 = 8 weightage)

Part B

Write short essay on any **four** *out of seven of the following.*
Each question carries 3 *weightage.*

1. What is pressure head, pressure drop ? Give the relationship.
2. Give the principle and application of solar heating.
3. Write a note on principle and working of fluidized bed dryer.
4. Write short note on any two separation process and its application.
5. What is distillation ? Mention the distillation equipments. Where it is used ?
6. What are the different principles used in size reduction ? Write about any two equipments used for size reduction.
7. Differentiate between : i) Single effect evaporator ; ii) Multi effect evaporator ; and iii) Sedimentation and crystallisation.

(4 × 3 = 12 weightage)

Part C

Write essay on any **two** *of the following.*
Each question carries 5 weightage.

1. Explain in detail the principle and working of super critical extraction with a neat sketch.
2. Explain the working of Hilde brand extractor with neat sketch. Where it is used ?
3. Explain in detail the principle and working of screw conveyor . Where it is used ?
4. Explain the principle and working of double pipe heat exchanger with neat sketch.

(2 × 5 = 10 weightage)

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SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2022

(CBCSS)

Food Science and Technology

FST 2C 07—INDUSTRIAL MICROBIOLOGY AND BIOCHEMICAL ENGINEERING

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
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4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Write short notes on any *four* out of seven of following questions. Each question carries a 2 weightage :

1. What is a sparger ?
2. Define primary and secondary screening.
3. Define gene cloning.
4. Define immobilized enzyme technology.
5. What is mycoprotein ?
6. Define Bread and Sour dough bread.
7. Define BOD and COD.

(4 × 2 = 8 weightage)

Part B

Write short essay on any *four* out of seven of the following. Each question carries a 3 weightage :

8. What are the preservation methods of microorganisms ?
9. What are the criteria to be considered for designing fermentor ?
10. Brief about Tray fermentor.
11. Write about biopolymers ?
12. What are the criteria for product recovery or downstream processing ?
13. What are the advantages and disadvantages of enzyme immobilization ?
14. Write short essay on sludge treatment.

(4 × 3 = 12 weightage)

Part C

Write essay on any **two** *of the following. Each question carries a 2 weightage.*

15. Detail about rDNA technology for industrial application.
16. Explain the role of fermenter parts and functions of fermentor.
17. Describe in detail about cheese fermentation.
18. What are the stages in downstream processing ?

(2 × 5 = 10 weightage)

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SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2022

(CBCSS)

Food Science and Technology

FST 2C 06—FOOD STORAGE AND INFESTATION CONTROL

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
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4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer any **four** *of the following questions.*
Each question carries 2 weightage.

1. How Methyl bromide acts as an active Ingredient in fumigation for insect infestation ?
2. What is bin inspection during grain storage ?
3. How Indian meal moth damages grain during storage ?
4. What are the major types of rodents that cause damage during the storage period ?
5. How Microbial spoilage occurs during storage ?
6. What is IGRS from Neem ?
7. What is flow in warehouse Layout planning ?

(4 × 2 = 8 weightage)

Part B

Answer any **four** *of the following questions.*
Each question carries 3 *weightage.*

1. Explain the internal feeders that cause damage during the storage of grains.
2. Discuss weight loss of grains.
3. What are the merits and demerits of Aluminum phosphide fumigant ? In what form the fumigant is available ?
4. What are the functions of food corporations of India (FCI) godowns ?
5. What are the factors to be considered while constructing godowns ?
6. Explain the role of juvenile hormones in pest control.
7. Explain ballooning technology developed by Central Food Technological Institute.

(4 × 3 = 12 weightage)

Part C

Answer any **two** *questions.*
Each question carries 5 *weightage.*

1. Explain the seven components in the integrated pest management for grain storage.
2. Explain the Storage Potential of Horticultural Produce in Air at Near-Optimum Storage temperature and Relative Humidity.
3. Explain Storage Structure Design for grain storage.
4. Explain the chemical method as protection of stored products from insect infestations.

(2 × 5 = 10 weightage)

C 23333 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2022

(CBCSS)

Food Science and Technology

FST 2C 05—BIOCHEMISTRY AND NUTRITION

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

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Part A

Answer any **four** *questions.*
Each question carries 2 weightage.

1. Define Coenzyme.
2. What is Glycolysis ?
3. BMR and the factors that influence the BMR.
4. Draw cell structure and label it.
5. Glycemic index.
6. Nutraceuticals.
7. Supplementary foods.

(4 × 2 = 8 weightage)

Part B

Answer any **four** *questions.*
Each question carries 3 *weightage.*

8. Explain about Carbohydrate digestion.
9. Brief about Enzyme classification.
10. What are Biosynthesis of macromolecules and lipid biosynthesis ?
11. Balanced Diet and RDA importance.
12. Marasmus and its causative factors risk factors and treatment. Explain.
13. Functions of fat soluble vitamins.
14. Write the nutritional requirements for pre-school children.

(4 × 3 = 12 weightage)

Part C

Answer any **two** *questions.*
Each question carries 5 *weightage.*

15. Explain about atherosclerosis formation and its dietary management.
16. Give a brief count on nutrition programmes in India.
17. Explain Macrominerals, their importance and deficiency diseases.
18. Explain the theories of enzyme substrate complex and its formation.

(2 × 5 = 10 weightage)