

Total No. of Questions : 7]

SEAT No. :

PE13041

[Total No. of Pages : 2

[6519]-1001

F.Y.M.Sc. (Wine Brewing & Alcohol Technology)

**WT-511-MJ : MICROBIOLOGY OF WINE, BEER AND ALCOHOL
(2024 Pattern) (CBCS) (Semester - I)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any 5 questions from Q.2 to Q.7.*
- 3) *Q.2 to Q.7 carry equal marks.*
- 4) *Figures to the right indicates full marks.*
- 5) *Draw neat and labelled diagrams wherever necessary.*
- 6) *Use of logarithmic tables and scientific calculator is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Answer any five the following.

[10]

- a) Define disinfections.
- b) State two functions of capsule.
- c) Define Enrichment Media.
- d) Name any two bacteriological filter.
- e) Mention two effects of Microbial contamination in wine.
- f) State two advantages of Antibiotics.

Q2) Answer the following.

- a) Explain bacterial cytology with diagram. **[7]**
- b) Describe Four plate method of Microbial Isolation. **[5]**

Q3) Answer the following.

- a) Explain physical methods of sterilization. **[7]**
- b) Describe complex media used in microbiology. **[5]**

P.T.O.

Q4) Answer the following.

- a) Explain nutritional requirements of yeast. [7]
- b) Explain Lactic Acid Fermentation. [5]

Q5) Answer the following.

- a) Explain the role of antimicrobial substances in controlling contamination during Alcoholic Fermentation. [7]
- b) Describe filtration as a sterilization method. [5]

Q6) Answer the following.

- a) Explain chemical sterilizing Agents. [7]
- b) Describe complex media used in microbiology. [5]

Q7) Write short notes on. (Any two)

- a) Monochrome staining. [6]
- b) Acetic Acid Fermentation. [6]
- c) Synthetic media. [6]



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SEAT No. :

PE13042

[Total No. of Pages : 2

[6519]-1002

F.Y.M.Sc. (Wine Brewing & Alcohol Technology)

WT-512-MJ : BIOCHEMISTRY OF WINE, BEER AND ALCOHOL

(2024 Pattern) (CBCS) (Semester - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any 5 questions from Q.2 to Q.7.*
- 3) *Q.2 to Q.7 carry equal marks.*
- 4) *Figures to the right indicates full marks.*
- 5) *Draw neat and labelled diagram wherever necessary.*
- 6) *Use of logarithmic tables and scientific calculations is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Answer the following. (any five)

[10]

- a) Write 1st law of thermodynamics.
- b) What is RNA? State any two features of RNA.
- c) Define Enzyme inhibition and state its categories.
- d) Which different strains are involved in MLF.
- e) Write various application of biochemistry in wine science.
- f) State functions of lipids.

Q2) Answer the following.

- a) Discuss briefly structure of double helix DNA.
- b) Comment on Koshland's Model.

[7]

[5]

Q3) Answer the following.

- a) Explain in detail about paper chromatography.
- b) Write a short note on malolactic fermentation.

[7]

[5]

Q4) Answer the following.

- a) Describe classification of Vitamin briefly.
- b) Comment on secondary structure of protein.

[7]

[5]

P.T.O.

Q5) Answer the following.

- a) Discuss glycolysis pathway and its significance. [7]
- b) What is buffer? Classify buffer. [5]

Q6) Answer the following.

- a) Discuss various metabolites produced during wine fermentation by bacteria. [7]
- b) Illustrate effect of pH on enzyme kinetics. [5]

Q7) Write a short notes on any two of the following. [12]

- a) Chloroplast structure
- b) Oligosaccharide
- c) Dark reaction and light reaction



Total No. of Questions : 5]

SEAT No. :

PE13043

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[6519]-1003

M.Sc. (Part - I) (Wine, Brewing and Alcohol Technology)

WT - 513 MJ : VINEYARD TECHNOLOGY

(2024 Pattern) (CBCS) (Semester - I)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Questions 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat and labelled diagram wherever necessary.*
- 6) *Use of logarithmic tables and scientific calculations is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Answer the following (any five) :

[5]

- a) State another name of Black soil.
- b) Enlist any two of fungal diseases.
- c) Define training.
- d) State causative organism of botrytis rot.
- e) What is vineyard?
- f) Define microclimate.

Q2) Answer the following :

- a) Explain briefly development stages of grapes.
- b) Write a short note on soil texture.

[6]

[4]

P.T.O.

Q3) Answer the following :

- a) Describe bench grafting in detail. [6]
- b) Comment on Anthracnose. [4]

Q4) Answer the following :

- a) Discuss in detail Botrytis rot and crown gall disease. [6]
- b) Write a note on topography. [4]

Q5) Write short note on any two of the following :

- a) Harvesting. [5]
- b) Chemical properties of soil. [5]
- c) Collection and storage of cutting. [5]

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Total No. of Questions : 5]

SEAT No. :

PE13044

[Total No. of Pages : 2

[6519]-1004

M.Sc. (Part - I) (Wine, Brewing and Alcohol Technology)

WT - 515 MJ : VITICULTURE

(2024 Pattern) (CBCS) (Semester - I)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Questions 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat and labelled diagram wherever necessary.*
- 6) *Use of logarithmic tables and scientific calculators is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Answer the following (any five) :

[5]

- a) Define soil moisture.
- b) Enlist any two white grape varieties.
- c) Mention one role of light in grapevine physiology.
- d) What is meant by manual harvesting?
- e) Enlist any two flavour compound of mature grape.
- f) Name one leading grape producing country in the world.

Q2) Answer the following :

- a) Describe the criteria for selection of healthy and true-to-type planting material in grapes. **[6]**
- b) Comment Harvesting operation. **[4]**

P.T.O.

Q3) Answer the following :

- a) Discuss in detail structure of berry. [6]
- b) Comment on grape production scenario of India. [4]

Q4) Answer the following :

- a) Explain genetic selection in grapevine. [6]
- b) Describe the role of humidity in grapevine growth. [4]

Q5) Write a short note on any two of the following :

- a) Harvesting periods. [5]
- b) Controlling of diseases in vineyard. [5]
- c) Maturity indices. [5]

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Total No. of Questions : 5]

SEAT No. :

PE13045

[Total No. of Pages : 2

[6519]-1005

M.Sc. (Part - I) (Wine, Brewing and Alcohol Technology)

WT - 516 - MJ : ALCOHOL TECHNOLOGY - I

(2024 Pattern) (CBCS) (Semester - I)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Questions 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat and labelled diagram wherever necessary.*
- 6) *Use of logarithmic tables and scientific calculator is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Answer any five of the following :

[5]

- a) List the two examples of sugar based feed stocks for 1st generation bioethanol production.
- b) What is the purpose of using molecular sieves in bioethanol production?
- c) What does the Brix value of molasses indicate and what is its typical range?
- d) What is the primary objective of the molasses pre-clarification process?
- e) Write chemical formula of ethanol which is present in alcoholic beverages?
- f) What is the primary goal of India's ethanol blending programme (EBP) concerning energy security?

Q2) Attempt the following :

- a) With the help of schematic representation explain the steps involved in production of bioethanol by cellulosic fermentation route. **[6]**
- b) What are the uses of ethyl alcohol? **[4]**

P.T.O.

Q3) Answer the following :

- a) How does biological alcohol production differ from synthetic alcohol production? [6]
- b) Explain the role of pre-clarification to reduce maintenance for distillation and heat exchangers. [4]

Q4) Answer the following :

- a) Explain the role of minerals and ash in industrial fermentation. [6]
- b) Describe in brief chemical composition of molasses. [4]

Q5) Write short notes on any two of the following :

- a) Key differences between Biological Vs Synthetic alcohol production.[5]
- b) Effect of ethanol blending programme (EBP) on food security. [5]
- c) Grades and types of molasses. [5]

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Total No. of Questions : 5]

SEAT No. :

PE13046

[Total No. of Pages : 2

[6519]-1006

M.Sc. (Part - I) (Wine, Brewing and Alcohol Technology)

WT - 517 - MJ : FOOD TECHNOLOGY

(2024 Pattern) (CBCS) (Semester - I)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Questions 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat and labelled diagram wherever necessary.*
- 6) *Use of logarithmic table and scientific calculator is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Answer any five of the following :

[5]

- a) What are Nutraceuticals.
- b) Role of flavour enhancers.
- c) Which spice is known for containing the bioactive compound curcumin?
- d) Define the term “Shelf Life”.
- e) Which chemical reagent is used to detect the presence of starch in Milk?
- f) What are thermophiles?

Q2) Answer the following :

- a) Elaborate on how multidisciplinary approach is essential for solving complex challenges in modern food industry. **[6]**
- b) Discuss the Nitrogenous compounds in vegetables, distinguishing between proteins and non-protein nitrogen. **[4]**

P.T.O.

Q3) Answer the following :

- a) Describe the spoilage of canned foods, focusing on “Swells” Flat “Sour” and “Flipper” conditions. [6]
- b) Explain the importance of balanced diet in meeting all functional body requirements. [4]

Q4) Answer the following :

- a) Distinguish between climacteric and Non-climacteric fruits, explain how their metabolic activity differs after harvest. [6]
- b) Describe the milling of rice and explain why “Polished Rice” is nutritionally inferior to brown rice. [4]

Q5) Write short notes on any two of the following :

- a) Four core principles of food safety. [5]
- b) Role of “Antinutritional Factors” in pulses. [5]
- c) Classification of chemical preservatives. [5]

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Total No. of Questions : 5]

SEAT No. :

PE13047

[Total No. of Pages : 2

[6519]-1007

M.Sc. (Part - I) (Wine, Brewing and Alcohol Technology)

WT-519-MJ : BIOCHEMICAL ENGINEERING

(2024 Pattern) (CBCS) (Semester - I)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any three questions from Q.2 to Q.5.*
- 3) *Questions 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat and labelled diagram wherever necessary.*
- 6) *Use of logarithmic tables and scientific calculators is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Answer the following. (any five)

[5]

- a) Define biomass yield.
- b) What is batch culture?
- c) Define maintenance coefficient.
- d) What is precipitation?
- e) Name one non-mechanical cell disruption method.
- f) What is drying?

Q2) Answer the following :

- a) Explain filtration and centrifugation.
- b) Short note on growth curve.

[6]

[4]

P.T.O.

Q3) Answer the following :

- a) Explain continuous culture and chemostat operation. [6]
- b) Short note on aqueous two phase extraction. [4]

Q4) Answer the following :

- a) Explain separation of soluble products. [6]
- b) Short note on yield coefficients. [4]

Q5) Answer the following : (Any two)

- a) Explain stoichiometry of product formation. [5]
- b) Short note on crystallization. [5]
- c) Write on coagulation technique. [5]

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Total No. of Questions : 7]

SEAT No. :

PE13048

[Total No. of Pages : 2

[6519]-1008

M.Sc. (Part - I) (Wine, Brewing and Alcohol Technology)

WT - 510 RM : RESEARCH METHODOLOGY

(2024 Pattern) (CBCS) (Semester - I)

Time : 2 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any 5 questions from Q2 to Q7.*
- 3) *Questions 2 to 7 carry equal marks.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat and labelled diagrams wherever necessary.*
- 6) *Use of logarithmic tables and scientific calculator is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Attempt any five of the following :

[10]

- a) Define the term Research problem.
- b) State any two ethical issues related to scientific publication.
- c) Define empirical Research.
- d) Explain the meaning of data analysis in research.
- e) State any two challenges encountered in conducting good research.
- f) Define copyright in context of research publication.

Q2) Answer the following :

- a) Classify & explain the types of research with suitable examples. **[7]**
- b) Describe the essential steps involved in preparing an effective PowerPoint presentation for scientific communication. **[5]**

Q3) Attempt the following :

- a) Explain the procedure for scientific poster presentation & discuss its importance in research dissemination. **[7]**
- b) Explain the concept of research hypothesis and illustrate the steps involved in its formulation. **[5]**

P.T.O.

Q4) Attempt the following :

- a) Analyze the role of data interpretation in research studies with suitable examples. [7]
- b) Explain the importance of science communication in modern research practices. [5]

Q5) Attempt the following :

- a) Discuss the ethical principles involved in scientific writing. [7]
- b) Identify and explain the major sources of literature review used in research. [5]

Q6) Attempt the following :

- a) Compare & explain different sampling techniques used in research. [7]
- b) Outline & explain the components of a project proposal work plan. [5]

Q7) Write short note on (any two) :

- a) Scientific Report writing. [6]
- b) Copyright law in research activities. [6]
- c) Research design. [6]

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Total No. of Questions : 5]

SEAT No. :

PE13049

[Total No. of Pages : 2

[6519]-1009

M.Sc. (Part - I) (Wine, Brewing and Alcohol Technology)
WT - 518 - MJ : MICROBIAL SCREENING AND STRAIN
IMPROVEMENT
(2024 Pattern) (CBCS) (Semester - I)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Questions 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat and labelled diagram wherever necessary.*
- 6) *Use of logarithmic tables and scientific calculators is allowed.*
- 7) *Assume suitable data if necessary.*

Q1) Answer the following (any five)

[5]

- a) Define secondary screening.
- b) Define chemical assay.
- c) State one objective of culture collection centres.
- d) Define permeability mutation.
- e) Define genetic engineering.
- f) Name one blotting techniques.

Q2) Answer the following :

- a) Explain detection and assay of fermentation products (physical + Chemical). **[6]**
- b) Define auxotrophic mutants. **[4]**

P.T.O.

Q3) Answer the following :

- a) Explain feedback-resistant mutants with relevance to product yield. [6]
- b) Define standard cultures. [4]

Q4) Answer the following :

- a) Discuss culture collection centres and their functions. [6]
- b) Define vectors used in genetic engineering. [4]

Q5) Write short notes on (any two) [10]

- a) Nucleic Acid Blotting techniques.
- b) Biological Assay (with one example)
- c) Industrial Importance of improved yeast strain.

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