

Total No. of Questions : 5]

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**P267**

**[3820] - 1**

**F.Y. B.Sc.**

**WINE TECHNOLOGY**  
**WT - 101: Microbiology**  
**(2008 Pattern) (Paper - I)**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat labelled diagrams wherever necessary.*

**Q1)** Attempt the following:

**[16]**

- a) Define Chemolithotrophs.
- b) Give two examples of cocci shaped bacteria.
- c) How can you convert a bright field microscope into a dark field microscope.
- d) Define selective media.
- e) Define Translation.
- f) Draw chemical structure of thymine.
- g) Define pasteur effect.
- h) Enlist methods of enumeration of yeasts.

**Q2)** Write short notes any four of the following:

**[16]**

- a) Frame shift mutations.
- b) Conjugation.
- c) Identification of micro organisms.
- d) Crabtree effect.
- e) Enrichment media.
- f) Principle of Bright field microscope.

**P.T.O.**

**Q3)** Attempt any two of the following: [16]

- a) Explain the external structures of bacteria.
- b) Describe the phases of growth of bacteria.
- c) Describe the structure of DNA.

**Q4)** Attempt any two of the following: [16]

- a) Describe the Messelson & stahl's experiment.
- b) Explain the degeneracy of genetic code.
- c) Explain nutritional classification of bacteria.

**Q5)** Attempt any one of the following: [16]

- a) Describe in detail taxonomy of yeasts.
- b) Explain the principle and working of phase contrast microscope.

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Total No. of Questions : 4]

[Total No. of Pages : 2

**P275**

[3820] - 101

**S.Y. B.Sc (Sem. - I)**

**WINE TECHNOLOGY**

**WT - 211: Yeast Culture Technology - I**

**(2008 Pattern) (Theory)**

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Draw neat labelled diagrams wherever necessary.*

**Q1)** Attempt the following:

**[10]**

- a) Enlist two yeast strains in wine making.
- b) Define - Lyophilization.
- c) Write name of enzyme that degrade cell wall components during autolysis.
- d) What is enrichment culture?
- e) Name the yeast which can grow at high osmotic pressure.
- f) State - True / False - In pour plate technique colonies are grown only on the surface of the medium.
- g) Write the activity of nuclease.
- h) ..... yeast degrade L-malic acid.
- i) Define - screening.
- j) What is curing of wine?

**Q2)** Attempt any two of the following.

**[10]**

- a) Describe preservation of yeast by oil overlay and soil storage method.
- b) Explain the methods for the prevention of microbial spoilage of wine.
- c) Describe enrichment culture technique for screening of yeast strains.

**P.T.O.**

**Q3) Write short notes on (Any two) [10]**

- a) Pathogens of grapevine.
- b) Stability of culture.
- c) Spread plate method.

**Q4) Attempt any one of the following. [10]**

- a) Describe the mechanism and importance of yeast autolysis.
- b) Explain the importance of yeast strains in wine making.

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Total No. of Questions : 4]

[Total No. of Pages : 2

**P276**

[3820] - 102

**S.Y. B.Sc. (Semester - I)**

**WINE TECHNOLOGY**

**WT - 212: Vineyard Technology - I  
(2008 Pattern)**

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat labelled diagram wherever necessary.*

**Q1)** Attempt the following:

**[10]**

- a) Write name of any two types of soil.
- b) Give any two chemical properties of soil.
- c) What is training?
- d) Name any two wine grape varieties.
- e) Give any one name of weedicide.
- f) Which type of soil is essential for best growth of grapes.
- g) Give any one merit of trench method of grape plantation.
- h) Enlist the micro nutrient.
- i) Write any one function of soil.
- j) What is soil?

**Q2)** Attempt any two of the following.

**[10]**

- a) Explain the physical properties of soil.
- b) Comment on origin of grape vines in world.
- c) What is pruning? Explain its effect in canopy management

**P.T.O.**

**Q3) Write notes on (Any two) [10]**

- a) Canopy attenuation.
- b) Soil types in maharashtra.
- c) Pit method of grape plantation.

**Q4) Enlist different trellising systems and explain any two of them. [10]**

OR

Explain the methods of irrigation, fertilizers and weed controle in wine grape.

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Total No. of Questions : 4]

[Total No. of Pages : 2

**P277**

**[3820] - 103**

**S.Y. B.Sc. (Sem. - I)**

**WINE TECHNOLOGY**

**WT - 213: Biochemistry - I**

**(2008 Pattern)**

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Draw neat labelled diagrams wherever necessary.*

**Q1)** Attempt the following:

**[10]**

- a) Define reverse osmosis.
- b) Give principle of centrifugation.
- c) Draw diagram of simple filtration unit.
- d) What is dielectric constant?
- e) Name any two metabolites produced in wine.
- f) What is sterilization?
- g) Draw structure of malic acid.
- h) What is stock culture?
- i) Define areation.
- j) Give two examples of anionic exchangers.

**Q2)** Write short notes on (any two)

**[10]**

- a) Ultrasonication.
- b) Importance of pH & alcohol content in MLF.
- c) Solvent recovery.

**P.T.O.**

**Q3)** Attempt any two of the following. **[10]**

- a) What are volatile phenolics? Explain.
- b) Explain any one Decolorization technique.
- c) Draw diagram of dialysis-extraction fermentation system.

**Q4)** Attempt any one of the following. **[10]**

- a) Give deleterious aspects of malic acid biodegradation.
- b) Describe high performance liquid chromatography.

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Total No. of Questions : 4]

[Total No. of Pages : 2

**P278**

**[3820] - 104**

**S.Y. B.Sc**

**WINE TECHNOLOGY (Sem. - I)**

**WT - 214: Fermentation - I**

**(2008 Pattern) (Theory)**

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat labeled diagrams wherever necessary.*

**Q1)** Attempt the following:

**[10]**

- a) Define Aspect ratio.
- b) What are antifoam agents.
- c) Enlist precursors used in fermentation.
- d) What is impeller?
- e) What is multistage fermenter.
- f) What is headspace?
- g) How is temperature controlled during fermentation?
- h) What is gas cycle refrigeration?
- i) State uses of sensor.
- j) Inoculum preparation is carried out in order to reduce actual fermentation time (True/False)

**Q2)** Attempt any two of the following.

**[10]**

- a) Describe the factor affecting design of fermenter.
- b) Explain the piping and valves used in fermentation.
- c) Explain the water treatment plant required by fermentation industry.

**P.T.O.**

**Q3)** Write short notes on (Any two) **[10]**

- a) Hollow fibre reactor.
- b) Feed parts.
- c) Repair and maintenance of fermenter.

**Q4)** Enlist and Explain different operation modes of fermenter. **[10]**

OR

Describe monitoring and control of various parameters during fermentation.

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Total No. of Questions : 4]

[Total No. of Pages : 2

**P279**

[3820] - 105

**S.Y. B.Sc. (Sem. - I)**

**WINE TECHNOLOGY**

**WT - 215: Fermentation - II**

**(2008 Pattern) (Paper - II) (Theory)**

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw neat labeled diagrams wherever necessary.*

**Q1)** Answer the following (All questions compulsory)

**[10]**

- a) Define Decimal reduction time.
- b) Name the sensors used for measuring pressure in fermentation process.
- c) Define anaerobiosis.
- d) Enlist causes of yeast cell autolysis.
- e) Maximum temperature used for continuous sterilization is \_\_\_\_\_ .
- f) Enlist foam control agents.
- g) Define stock culture.
- h) Enlist the various carbon sources that can be used in fermentation.
- i) Define immobilization.
- j) Define precursors.

**Q2)** Attempt any two of the following.

**[10]**

- a) Explain the technique of response surface methodology in media optimization.
- b) Explain the method of measurement and control of D.O in fermentation process.
- c) Write the applications of immobilized enzymes.

**P.T.O.**

**Q3) Answer the following (Any two) [10]**

- a) Write the importance of pH measurement and control in fermentation process.
- b) What is sterilization? Explain in detail batch sterilization process.
- c) Explain in detail the method of crosslinking of enzyme.

**Q4) Answer the following (Any one) [10]**

- a) Explain in detail the composition of grape juice with respect to C,N,Vit, pH and minerals.
- b) Comment on the advantages of Plackett Burman design over the classical one factor design approach.

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Total No. of Questions : 4]

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**P280**

**[3820] - 106**

**S.Y. B.Sc. (Sem. - I)**

**WINE TECHNOLOGY**

**WT - 216: Wine Technology - I  
(2008 Pattern)**

*Time :2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat labelled diagrams wherever necessary.*

**Q1)** Attempt the following.

**[10]**

- a) Define.
  - i) Fermentation.
  - ii) Racking.
  - iii) Blush wine.
- b) State True / False.
  - i) Wort is a medium used for wine making.
  - ii) Saccharomyces is a yeast used in wine making.
  - iii) Shiraz & Zinfundal are wine styles.
- c) Write composition of red wine.
- d) What is wine ageing?
- e) Write two non - grape fruits to produce wine.
- f) Write two kinds of pigments present in grapes.

**Q2)** Write short notes on any two.

**[10]**

- a) Must.
- b) Wine styles.
- c) MLF.

**P.T.O.**

**Q3)** Attempt any two of the following: **[10]**

- a) Describe effect of a temperature on wine quality.
- b) Explain in brief. Sensory evaluation of wine.
- c) Describe inoculum development for wine making.

**Q4)** Attempt any one of the following: **[10]**

- a) Describe management of grape garden under aberrant climatic conditions.
- b) Explain with the help of flow sheet white wine making.

**\*\*\*\*\***

Total No. of Questions : 5]

[Total No. of Pages : 2

**P268**

[3820] - 2

F.Y. B.Sc.

**WINE TECHNOLOGY**  
**WT - 102: Microbiology**  
**(2008 Pattern) (Paper - II )**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat labelled diagrams wherever necessary.*

**Q1)** Attempt the following.

**[16]**

- a) Define 'F' Value.
- b) Define agitation.
- c) What are HEPA filters.
- d) Name the physical agents used for sterilization.
- e) Name any two culture collection centers.
- f) Define Pasteurization.
- g) What is the action of chlorine on bacteria.
- h) Enlist the carbon sources used in fermentation medium.

**Q2)** Write short notes on any four.

**[16]**

- a) Batch fermentation.
- b) Fumigation.
- c) Upstream processing.
- d) Scope of Industrial Microbiology.
- e) Types of spargers.
- f) Nitrogen sources used in fermentation medium.

**P.T.O.**

**Q3)** Attempt any two of the following: **[16]**

- a) Explain the structure and working of air lift fermenter.
- b) Enlist different types of fermentations. Explain in detail dual fermentation with examples.
- c) Explain in detail the process of inoculum preparation.

**Q4)** Attempt any two of the following: **[16]**

- a) Define screening. With two examples explain primary screening.
- b) What is sterilization? Comment on use of moist heat in sterilization.
- c) What are antifoam agents? Elaborate on use of antifoam agents in fermentation.

**Q5)** Attempt any one of the following: **[16]**

- a) Explain the different methods of maintenance of stock cultures.
- b) Explain the strain development in detail.

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Total No. of Questions : 5]

[Total No. of Pages : 2

**P269**

**[3820] - 3**

**F.Y. B.Sc.**

**WINE TECHNOLOGY**

**WT - 104: Botany**

**(2008 Pattern) (Paper - I)**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat labelled diagram wherever necessary.*

**Q1)** Attempt the following.

**[16]**

- a) Enlist different parts of plant cell.
- b) Define mitosis.
- c) What is transpiration?
- d) Enlist any four types of Racemose inflorescence.
- e) Give any one significance of Respiration.
- f) Which are the reproductive parts of the flower.
- g) Define embryology.
- h) Give any two objectives of taxonomy.

**Q2)** Attempt any Four of the following.

**[16]**

- a) Explain the structure of embryo sac.
- b) Describe any two types of cymose inflorescence.
- c) What is stomata? Describe the types of stomata.
- d) What are the significance of mitosis and meiosis.
- e) Explain the structure and function of mitochondria.
- f) What are anthers? Explain the structure of anther.

**P.T.O.**

**Q3) Write short notes on any Four of the following: [16]**

- a) Phytotaxonomy.
- b) Floral whorls.
- c) Symmetry of flower.
- d) Respiration.
- e) Concept of botany.
- f) Cell structure.

**Q4) Answer the following (Any Two) [16]**

- a) Give the evidences of 'Flower as a modified shoot'.
- b) What is flower? Describe the various parts of flower.
- c) Explain Mendel's laws of inheritance with reference to dihybrid ratio.
- d) With the help of diagram describe the structure of typical plant body and give the function of different plant parts.

**Q5) Explain glycolysis cycle and give its schematic representation. [16]**

OR

Explain the process of fertilization and formation of embryo in plants.

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Total No. of Questions : 5]

[Total No. of Pages : 2

**P270**

**[3820] - 4**

**F.Y. B.Sc.**

**WINE TECHNOLOGY**

**WT - 105: Botany**

**(2008 Pattern) (Paper - II )**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat labelled diagrams wherever necessary.*

**Q1)** Answer the following.

**[16]**

- a) Give any two objectives of Anatomy.
- b) What is parenchyma?
- c) Enlist the natural vegetative methods of propagation.
- d) What is seed propagation?
- e) Give any two botanical names of medicinal plants studied by you.
- f) What are the ornamentals?
- g) Give any one character of dicot plant.
- h) Define pharmacognosy.

**Q2)** Answer any Four of the following.

**[16]**

- a) Explain internal secretory tissue system.
- b) Enlist types of meristematic tissue and explain any one of them.
- c) Give the importance of plants and their products.
- d) Write the medicinal importance of Adulsa.
- e) What is cutting? Explain stem cutting?
- f) Describe the internal structure of typical monocot root.

**P.T.O.**

**Q3)** Write short notes on any Four of the following: **[16]**

- a) Dye.
- b) Uses of Ginger.
- c) Apical meristem.
- d) Functions of xylem.
- e) Runners and tubers.
- f) Applications of anatomy in taxonomy.

**Q4)** Answer any Two of the following. **[16]**

- a) With the help of labelled diagram, describe the internal structure of Dicot stem.
- b) Explain the importance of anatomy in wood identification.
- c) What is tissue culture? Explain the mechanism.
- d) Explain the merits and demerits of vegetative propagation methods.

**Q5)** Give the botanical name, plant part used and uses of Clove, Cinnamon and Aloe. **[16]**

OR

What is simple tissue system? Explain any three types of simple tissues.

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Total No. of Questions : 5]

[Total No. of Pages : 2

**P271**

**[3820] - 5**

**F.Y. B.Sc.**

**WINE TECHNOLOGY**

**WT - 107: Biochemistry - I**

**(2008 Pattern) (Paper - I)**

*Time : 3Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Draw neat labelled diagrams wherever necessary.*

**Q1)** Attempt the following questions.

**[16]**

- a) What is rancidity?
- b) Define Buffers.
- c) Draw structures of (i) Glucose (ii) Fructose.
- d) What is Entropy and Ethalpy? Define.
- e) Define (i) Apoenzymes (ii) Holoenzymes.
- f) What is glycosidic bond?
- g) Define Isoelectric pH.
- h) What are Vitamines?

**Q2)** Attempt any Four of the following.

**[16]**

- a) Describe structural polysaccharides.
- b) What is End-product inhibition?
- c) Enlist biological functions of proteins.
- d) Explain bicarbonates as a buffer.
- e) Draw the structures of basic amino acids.
- f) Give sources and biochemical importance of Riboflavin.

**P.T.O.**

**Q3)** Attempt any Four of the following. **[16]**

- a) Enzymes are highly specific, explain.
- b) Explain with neat labelled diagram, prokaryotic and eukaryotic cell.
- c) Give principle and applications of spectrophotometry.
- d) Explain any 4 bonds in biomolecules.
- e) Describe various chemical properties of lipids.
- f) Explain structure of B-Pleated sheets.

**Q4)** Attempt any Two of the following. **[16]**

- a) Explain the effect of substrate concentration on enzyme activity.
- b) Give Handerson and Hasselbalch equation add a note on redox couple.
- c) Describe Dansyl and dabsyl chloride method for determination of primary structure of proteins.

**Q5)** Attempt any Two of the following. **[16]**

- a) Give detail classification of carbohydrates.
- b) Give short note on
  - (i) Non- reducing sugar.
  - (ii) Waxes.
- c) Explain principle, procedure and applications of Thin layer chromatography.

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**P272**

**[3820] - 6**

**F.Y. B.Sc**

**WINE TECHNOLOGY**  
**WT - 108: Biochemistry**  
**(Paper - II) (2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Draw neat labeled diagrams wherever necessary.*

**Q1)** Attempt the following:

**[16]**

- a) What is end product inhibition?
- b) Define oxidative phosphorylation.
- c) What are Amino acids?
- d) Define Bioenergetics.
- e) What is  $\alpha$ - oxidation of fatty acids?
- f) Define enthalpy.
- g) What is high energy bond?
- h) Give any one reaction catalyzed by enzyme kinase.

**Q2)** Attempt any four of the following:

**[16]**

- a) Write short note on  $F_1F_0$  ATPase complex.
- b) Give action of amylase on starch.
- c) Distinguish between primary & secondary metabolites.
- d) What are pyrimidines? Draw their structures.
- e) Write a note on salvage pathway of nucleic acid biosynthesis.
- f) What are oligomeric proteins?

**P.T.O.**

**Q3)** Attempt any four of the following: **[16]**

- a) Draw neat labelled diagram of electron transport chain.
- b) What are anaplerotic reactions of TCA cycle.
- c) Heat can not work in biological system, why?
- d) Enlist the different types of high energy compounds.
- e) What are allosteric enzymes?
- f) Give short note on oxidative phosphorylation.

**Q4)** Attempt any two of the following: **[16]**

- a) Discuss the formation of Lactic acid by anaerobic fermentation.
- b) Explain in detail - gluconeogenesis.
- c) What are essential fatty acids? Add a note on carnitine in  $\beta$ -oxidation.

**Q5)** Attempt any two of the following: **[16]**

- a) Explain in detail Lac Operon.
- b) What is negative regulation of transcription? Explain.
- c) Give the concept of mass balance with respect to ethanol fermentation.

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**P273**

**[3820] - 7**

**F.Y. B.Sc**

**WINE TECHNOLOGY**  
**WT - 110: Wine Technology**  
**(Paper - I) (2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat labelled diagram wherever necessary.*

**Q1)** Attempt the following:

**[16]**

- a) Define still wine.
- b) What is vinification?
- c) List components of grape juice.
- d) Champagne is \_\_\_\_\_ type of wine.
- e) \_\_\_\_\_ pigment imparts color to red wine.
- f) Write chemical constituents of oak.
- g) Write four grape varieties used for white wine production.
- h) What is terrior?

**Q2)** Attempt any four of the following:

**[16]**

- a) Explain role of maceration in detail.
- b) Describe effect of wind and rain on cultivation of grapevine.
- c) Classify wine on the basis of chemical composition.
- d) Describe grape variety as a criteria for quality of wine production.
- e) Explain different automation operations in wine industry.

**P.T.O.**

**Q3)** Attempt any two of the following: **[16]**

- a) Fortified wines.
- b) Structure of soil & growth of grape vine.
- c) Maintenance & storage of barrels.

**Q4)** Attempt any two of the following: **[16]**

- a) Describe different practices of wine making in different parts of the world.
- b) Describe in brief production of wine from fruits other than grapes.
- c) What is tractability? Explain tractability as a essential criteria for quality of wine.

**Q5)** Attempt any one of the following: **[16]**

- a) Write generic classification of wine. Describe in detail white wine production with the help of flow chart.
- b) Describe oak barrel with respect to
  - i) Species of oak.
  - ii) Liberation of oak flavours in wine.
  - iii) Advantages of wine storage in oak barrels.
  - iv) Other methods of wine storage.

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**P274**

**[3820] - 8**

**F.Y. B.Sc**

**WINE TECHNOLOGY**

**WT - 111: Wine Technology - P - II**

**(2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw neat labelled diagrams wherever necessary.*

**Q1)** Answer the following:

**[16]**

- a) List important senses for tasting of wine.
- b) Define wine.
- c) What are carbonated drinks?
- d) Give two examples of alcoholic beverages.
- e) Write chemical constituents of grapes used in wine making.
- f) Write two phenolic compounds.
- g) Define organic wines.
- h) What is precision viticulture?

**Q2)** Attempt any four of the following.

**[16]**

- a) What are closures? Give its advantages.
- b) Write harmful effects of wine on human health.
- c) Describe technique of bottle opening.
- d) Comment on additives used in wine.
- e) Explain design of room for wine tasting.

**P.T.O.**

**Q3) Write short notes on (Any two) of the following: [16]**

- a) Visionary & aroma senses for wine tasting.
- b) Vintage & quality of wine.
- c) Wine Marketting.

**Q4) Attempt any two of the following: [16]**

- a) What are biodynamic wines? Explain importance of its production.
- b) Explain Economic significance of grape growing & wine making.
- c) Explain tasting of wine with respect to.
  - (i) Selection of glass
  - (ii) Timing of wine tasting.

**Q5) Attempt any One of the following: [16]**

- a) Describe serving of wine with the help of
  - (i) Wine styles
  - (ii) types of glass.
  - (iii) Storing of wine
  - (iv) types of bottles.
- b) Explain raw materials & equipments used in wine making.

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**P439**

**[3820-A]-11**

**B.Sc. (Applied)**

**WINE TECHNOLOGY**

**AWT - 101 : Viticulture Resource Management and Principles of Wine  
Technology**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Draw neat labelled diagrams wherever necessary.*
- 3) *All questions carry equal marks.*

**Q1) Attempt the following: [16]**

- a) Write the varieties of grape for wine making and resin making.
- b) Define Planting density.
- c) Define budding.
- d) Define fertigation.
- e) Enlist the propagation techniques in grapes.
- f) Write the causal organism of powdery mildew disease.
- g) What is IPM?
- h) Give the names of any four systemic pesticides.

**Q2) Write short note on (Any four) [16]**

- a) Canopy management.
- b) Pruning of grapevine.
- c) Pest management in grapevine.
- d) Organic farming.
- e) Packaging and grading of grapes.

**Q3) Answer the following (Any two) [16]**

- a) Enlist the different training method. Describe telephone system.
- b) Write the harvesting indices of grape for wine making.
- c) Write the commercial classification of grape for wine making.

**Q4)** Answer the following (Any two): **[16]**

- a) Enlist the diseases of grape. Write causal organism, symptoms and control measures for Downey mildew disease.
- b) Describe the present scenario of viticulture with old world and new world of wine.
- c) Enlist the chemical properties of soil and explain any one in detail.

**Q5)** Explain the factors to be considered before establishing the vineyard. **[16]**

OR

Write the sequence of steps involved in grape cultivation from planting to harvest.



**P440**

**[3820-A]-12**

**B.Sc. (Applied)**

**WINE TECHNOLOGY**

**AWT - 102 : Wine Microbiology**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Figures to the right indicate full marks.*
- 4) *Neat diagrams must be drawn wherever necessary.*

**Q1) Attempt the following:** **[16]**

- a) Name any two yeasts used for wine making.
- b) State the stage of wine production where ripening takes place.
- c) Name the yeast which shows pseudomycelium.
- d) Name any two organisms causing food spoilage.
- e) Define “ $a_w$ ”.
- f) State whether true or false : Crabtree effect is not seen in yeast.
- g) State whether true or false : Sulfitation is carried out to disinfect the grape must.
- h) State whether true or false : pH of wine is alkaline.

**Q2) Attempt any two of the following.** **[16]**

- a) Explain the role of wild yeast in wine making.
- b) Describe the effect of lactic acid bacterial contamination of wine.
- c) What are film forming yeast? Explain their involvement in wine making.

**Q3) Write short notes on any four of the following:** **[16]**

- a) Pasteur effect.
- b) Effect of temperature on maturation of wine.
- c) Role of irradiation in fruit preservation.
- d) Homothallism in yeast.
- e) Asthetic value of wine.

**Q4)** Attempt any two of the following: **[16]**

- a) With the help of a diagram, describe the life cycle of wine yeast.
- b) Explain the deleterious effect of killer yeast in wine production.
- c) Name the acids produced in wine production. Explain whether volatile acidity is deleterious to wine making.

**Q5)** Attempt any one of the following: **[16]**

- a) Explain the environmental conditions required to be Monitored to optimize wine production by yeast.
- b) Describe the biochemistry of wine production.





**P441**

**[3820-A]-13**

**B.Sc. (Applied)**

**WINE TECHNOLOGY**

**AWT - 103 : Fermentations**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *All questions carry equal marks.*

**Q1)** Attempt the following: **[16]**

- a) Write the method of control of foam in fermentation.
- b) Write the use of precursors.
- c) What are non-alcoholic wines?
- d) State true or false - pomegranates are used as raw material for wine making.
- e) Write any two examples of cellulosic raw materials.
- f) State true or false - Grape must can be sterilized at 121°C for 15 mins.
- g) Define seed culture.
- h) Write the nutritional value of wine.

**Q2)** Write short notes on any Four of the following. **[16]**

- a) Alcoholic fermentation by Z.mobilis.
- b) Monitoring of wine making process.
- c) Carbohydrate rich raw materials.
- d) Sanitation in winery.
- e) Control of pH of fermentation broth.

**Q3)** Attempt any two of the following: **[16]**

- a) Explain the effect of temperature on growth of yeast cells.
- b) Explain the process of must preparation in wine making.
- c) Draw the layout of fermentation plant.

**P.T.O.**

**Q4)** Attempt any two of the following: **[16]**

- a) Describe briefly the methods of extraction of fermentation products.
- b) Describe the methods of media sterilization.
- c) Explain the stages of inoculum development programme.

**Q5)** With the help of a suitable diagram describe the design of typical fermenter and its parts. **[16]**

OR

Explain how fermentation parameters are controlled during operation of fermenter.



**P442**

**[3820-A]-21**

**B.Sc. (Applied) (Sem. - II)**

**WINE TECHNOLOGY**

**AWT - 201 : Large Scale Production of Wine**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Draw neat diagrams wherever necessary.*

**Q1)** Attempt the following:

**[16]**

- a) \_\_\_\_\_ bacteria are responsible for degradation of tartaric acid.
- b) Define 'Terroir'.
- c) What is the difference between dry wine and sweet wine?
- d) Write the nitrogen sources present in must.
- e) State true or false -
  - i) Wine yeast will die off at 100°F(38°C) or more.
  - ii) Sugar concentration greater than 30% inhibits yeast growth.
- f) What is the desirable concentration of sugar in must?
- g) Botrytis cinerea is \_\_\_\_\_
  - i) Bacteria.
  - ii) Algae.
  - iii) Fungi.
  - iv) Virus.
- h) Ethanol is oxidized to form \_\_\_\_\_ in sherry wine.

**Q2)** Attempt any FOUR of the following.

**[16]**

- a) Explain the use of SO<sub>2</sub> in wine making.
- b) Describe red wine styles.
- c) Write the significance of malo-lactic fermentation.
- d) Write distinguishing characters of rose wine.
- e) Write a short note on preparation of starter for fermentation.

**P.T.O.**

**Q3)** Attempt any TWO of the following: [16]

- a) Describe various steps of making of fortified wine.
- b) Write the composition of must. Describe preparation of must for fermentation.
- c) Explain the concept of sensory evaluation of wine.

**Q4)** Attempt any TWO of the following: [16]

- a) Describe major grape varieties used in wine making.
- b) Draw the flowchart for production of red wine.
- c) Explain how grape varieties, yeast culture and other changes during fermentation affect the flavor of wine.

**Q5)** Attempt any ONE of the following: [16]

- a) With the help of a flow chart describe production of sparkling wine.
- b) Describe the large scale production of white wine.



**P443**

**[3820-A]-22**

**B.Sc. (Applied) (Sem. - II)**

**WINE TECHNOLOGY**

**AWT - 202 : Post Fermentation Operation and Wine Appraisal**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *All questions carry equal marks.*

**Q1) Answer the following: [16]**

- a) What is fining? What are fining agents?
- b) What is an oxidation reduction phenomenon occurring during ageing of wine?
- c) How do you quantify amount of SO<sub>2</sub> to be added to the wine?
- d) What are phenol characteristics of red wine?
- e) What are the precautions to be taken during bottling of wine?
- f) Describe the difference in the quality of red wine during bottle ageing and barrel ageing?
- g) What is microbiological stabilization of must & wine?
- h) Enlist precautions to be taken during wine storage & bottling?

**Q2) Write short note on [Any 4]: [16]**

- a) Maturation and Ageing of wine.
- b) Sensory evaluation of wine.
- c) Sterilization during bottling.
- d) Write a note on fining agents used for red wine.
- e) Explain in brief how types of barrels affect maturation of wine.

**Q3) Answer the following [Any 2]: [16]**

- a) What are the necessary tools for sensory research? Write the parameters that affect sensory evaluation of wine?
- b) Describe the ways by which maturation can be done? which according to you is the best process?
- c) What is the influence of oak barrel ageing on the quality of the wine.
- d) Why to determine the concentration of SO<sub>2</sub> to be added to the wine? What is the influence of SO<sub>2</sub> on wine?

**P.T.O.**

**Q4)** Answer the following [Any 2]: **[16]**

- a) Write a note on factors influencing oxidation reduction potential in red wine?
- b) Enlist the precautions to be taken during sensory evaluation of wine?
- c) How time and temperature affect the maturation and ageing of wine?

**Q5)** a) Role of sensory consultant in wine industry. How does it influence wine sale. **[16]**

OR

- b) Give all the fining agents and describe briefly their action.



**P444**

**[3820-A]-23**

**B.Sc. (Applied) (Sem. - II)**

**WINE TECHNOLOGY**

**AWT - 203 : Process Problems and Management, Marketing, Patenting  
and Wine Laws**

*Time : 3 Hours]*

*[Max. Marks : 80*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *All questions carry equal marks.*

**Q1)** Attempt the following:

**[16]**

- a) Define Patent.
- b) Enlist the non traditional fruits for wine making.
- c) Define 'French Paradox'.
- d) Enlist the winery waste products.
- e) Write the names of export quality wine varieties.
- f) Define bioinformatics.
- g) Write the information to be furnished on wine label.
- h) Write the full forms of HDL & LDL.

**Q2)** Write a short notes on [Any four].

**[16]**

- a) Labelling of wine.
- b) Wine laws.
- c) Role of bioinformatics in wine marketing.
- d) International marketing of wine.
- e) Prospects of wine production in India.
- f) Patenting of wine.

**Q3)** Answer the following [Any two].

**[16]**

- a) Describe the types & techniques of marketing.
- b) Write the role of advertisement in marketing of wine.
- c) Describe the buying behaviour of an Indian Consumer.

**Q4)** Answer the following [Any Two]. **[16]**

- a) Describe the elements of marketing segmentation.
- b) Describe the significance of international marketing of wine for developing countries.
- c) Carbonated fruit beverages as a alternative for the synthetic drinks. Justify.

**Q5)** Explain the waste utilization and pollution control measures in winery. **[16]**

OR

Compare the Indian trade with world trade with respect to wine.





**P949**

**[3820]-107**

**S.Y. B.Sc. (Sem. - I)**

**OPTIONAL ENGLISH**

**Enriching Oral and Written Communication in English**

**(New Course)**

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

**Q1)** Attempt any two of the following: **[10]**

- a) What is communication and how is it important in our lives?
- b) Explain 'Body Language' as the effective means of communication.
- c) Imagine that you have been appointed as a Managing Director in the company. Explain how 'Upword Communication' can help you handle the situation.

**Q2)** Attempt the following: **[10]**

- a) Find out the meaning of the underlined words in the given sentences. **[2]**
  - i) It is a cold day.
  - ii) She gave me a cold look.
- b) Write four words each closely related in meaning to the following words. **[2]**
  - i) Walk.
  - ii) Look.
- c) Use the following words in separate sentences. **[2]**

hard, hardly
- d) Match the synonymes. **[4]**

A	B
i) Friend	servile
ii) Value	alien
iii) Obedient	comrade
iv) Stranger	worth

- Q3) Attempt the following:** [10]
- a) Change the following words by adding prefixes. (any two) [2]
    - i) patient            ii) logical            iii) responsible
  - b) Change the following words by adding suffixes. (any two) [2]
    - i) sun            ii) gold            iii) legend
  - c) Make noun (any two) [2]
    - i) please            ii) develop            iii) global
  - d) Write the right combination of the words given below (any four) [4]
    - i) opposite statement / contradictory statement
    - ii) fluent English / easy English
    - iii) commit a crime / do a crime
    - iv) quick meal / fast meal
    - v) glare at / glare towards

- Q4) Attempt the following:** [10]
- a) Write four words belonging to the following lexical web. (any one) [1]
    - i) home            ii) computer
  - b) Identify the part of speech of the underlined words. (any one) [1]
    - i) He sold his car hurriedly.
    - ii) She is a kind lady.
  - c) Write the meaning of the any one of the following phrase and use in the sentence. [1]
    - i) bring out            ii) to look in
  - d) Transcribe phonetically any one word of the following and mark the accent. [1]
    - i) carpet            ii) berry
  - e) Say whether the following sentences will be said with a falling or a rising tone. [1]
    - i) Are you coming?
    - ii) The mother is sending an email.
  - f) Underline the weak forms in the following sentences. (any one) [1]
    - i) It is ten to eight.
    - ii) It is a nice day.
  - g) Write down the responses to the situations given below. (any two) [4]
    - i) welcoming someone.
    - ii) seeing off someone.
    - iii) responding to bad news.

