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SEAT No. :

P305

[Total No. of Pages : 2

[4121] - 301

T.Y. B.Sc.

WINE TECHNOLOGY

WT - 332: Basic Chemical Engineering Principles

(Sem. - III) (2008 Pattern)

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to candidates:*

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

**Q1)** Answer the following:

**[10]**

- a) Write the function of expansion valve.
- b) Newton's Law of cooling  $Q = \text{-----}$ .
- c) Shell and tube is one of the type of -----.
- d) Define specific heat.
- e) The unit of thermal conductivity is -----.
- f) What is turbulent flow?
- g) Name any two filters used for liquid filtration.
- h) The unit of heat transfer coefficient is -----.
- i) Define the Pressure.
- j) State Ohms Law.

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

**[10]**

- a) Explain the working of Tubular heat exchanger with neat sketch.
- b) Write the physical and chemical properties of refrigerant used in refrigeration system.
- c) Explain the working of membrane filter with neat sketch.

**P.T.O**

**Q3)** Write a short note on any two of the following:

**[10]**

- a) Types of compressor.
- b) Orifice meter.
- c) Conductive heat transfer and convective heat transfer.

**Q4)** Explain the working of shell and Tube heat exchanger with neat sketch. **[10]**

OR

State the function of pump. Write the pump selection method and draw characteristic diagram.



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SEAT No. :

P306

[Total No. of Pages : 2

**[4121] - 302**  
**T.Y. B.Sc.**  
**WINE TECHNOLOGY**  
**WT - 333: Equipment & Utilities**  
**(Sem. - III) (2008 Pattern)**

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

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

**Q1)** Answer the following:

**[10]**

- a) Neck freezer is ———— equipment.
- b) What is air conditioning?
- c) Insulation is used for ————.
- d) Name any two process equipments.
- e) Diaphragm pump is used for ————.
- f) Spray Nozzle is used for ————.
- g) The material used for wine tank is ————.
- h) Write any two types of heat exchanger.
- i) State the function of pallet Jacks.
- j) State the function of humidifier.

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

**[10]**

- a) State the function of dissolved oxygen meter and explain working principle.
- b) Explain any five material handling equipments with function.
- c) Explain the need of water softening.

**P.T.O.**

**Q3)** Write a short note on any two of the following: **[10]**

- a) Pneumatic press.
- b) Neck freezer.
- c) Plate heat exchanger.

**Q4)** Explain the working of chilling plant system with neat sketch. **[10]**

**OR**

Explain the working of wire hood machine with neat sketch.



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SEAT No. :

P307

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[4121] - 303

T.Y. B.Sc.

WINE TECHNOLOGY

WT - 334: Pre and Post Fermentation Processing in Winery  
(Sem. - III) (2008 Pattern)

Time : 2 Hours]

[Max. Marks : 40

*Instructions to the candidates:*

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

**Q1)** Attempt the following:

[10]

- a) Define - Ageing.
- b) What is upstream processing?
- c) Write two visual criteria for grape sensing.
- d) List two yeast strains used in wine fermentation.
- e) Write composition of must.
- f) Why nitrogen content of grape juice is checked?
- g) List two fining agents.
- h) Write a reaction of alcohol production during wine fermentation.
- i) Define - Membrane filtration.
- j) Enlist the methods for grapes maturity analysis.

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

[10]

- a) Describe various closures used in packing of wine with their advantages and disadvantages.
- b) Explain pros and cons of unfiltered wine.
- c) Comment on labels and closures used in packing of wine.

**P.T.O.**

**Q3) Write Short Notes (any two):**

**[10]**

- a) Fine lees Vs coarse lees.
- b) Sulfur dioxide in wine.
- c) Blending of wine.

**Q4) Attempt any one of the following:**

**[10]**

- a) Describe Malo-lactic fermentation with respect to
  - i) Micro-organisms involved.
  - ii) Chemical reaction.
  - iii) Its significance.
- b) Write an essay on yeasts used in wine fermentation.



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SEAT No. :

P308

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T.Y. B.Sc.

WINE TECHNOLOGY

WT - 335: Health Benefits of Wine

(Sem. - III) (2008 Pattern)

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

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

**Q1)** Attempt the following:

**[10]**

- a) Define - Antioxidant.
- b) List two degenerative diseases.
- c) What is LDL?
- d) \_\_\_\_\_ enzyme of liver break down ethanol to carbon dioxide and water.
- e) Write functions of polyphenols in wine.
- f) Write role of salicylic acid.
- g) What is a difference between liquor and wine?
- h) What is dementia?
- i) Define - Alzheimer's disease symptoms.
- j) What is fermentation?

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

**[10]**

- a) Describe source and role of epicatechin and gallic acid in wine.
- b) How antioxidant helps to cure disease?
- c) Explain role of wine in reduction of cardiovascular diseases.

**P.T.O.**

**Q3)** Write Short Notes (any two):

**[10]**

- a) Free radicals scavengers.
- b) Wine and kidney stones.
- c) Health benefits of moderate alcohol consumption.

**Q4)** Attempt any one of the following:

**[10]**

- a) Write an essay on meal time alcohol consumption.
- b) What is French Paradox? Explain role of wine in anti-degenerative diseases.





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SEAT No. :

P309

[Total No. of Pages : 2

[4121] - 305

T.Y. B.Sc.

WINE TECHNOLOGY

WT - 336: Byproducts and Waste Management

(Sem. - III) (2008 Pattern)

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

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

**Q1)** Answer the following:

**[10]**

- a) Define Rochelle salt.
- b) Name the salts of tartaric acid.
- c) Uses of grape seed oil.
- d) What is ThOD and COD?
- e) What are the constituents of total dissolved solids of waste water?
- f) Enlist the chemical flocculants.
- g) What is oxidation ditch?
- h) Principle of UASB.
- i) What is primary sedimentation?
- j) Enlist toxic pollutants.

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

**[10]**

- a) Explain the methods of extraction and uses of anthocyanins from grape peel.
- b) Define and differentiate between ThOD, BOD and COD.
- c) Describe the operation of high rate complete mix stage anaerobic digester.

**P.T.O.**

**Q3)** Write a short note on any two of the following: **[10]**

- a) The types of grape seed tannins.
- b) The integrated approach to waste treatment.
- c) The stages in which the organic matter is decomposed during anaerobic treatment.

**Q4)** Explain the different attached and suspended aerobic treatment methods for sewage Treatment. **[10]**

OR

Explain the different parameters used in the assessment of industrial water quality.



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SEAT No. :

P310

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[4121] - 401

T.Y. B.Sc.

WINE TECHNOLOGY

WT - 342: Fruit and Fortified Wines

(Sem. - IV) (2008 Pattern)

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

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

**Q1)** Answer the following:

**[10]**

- a) What is hard and soft wine?
- b) Define - Carbonated fruit beverages.
- c) What is fruit beer?
- d) Enlist method of increasing berry sugar.
- e) Why brandy alcohol is added in wines?
- f) Define - synthetic beverages.
- g) Enlist harmful effects of synthetic drinks on health.
- h) Write differences between banana and strawberry wine.
- i) Why liquor is added during wine making?
- j) How *Botrytis* affects desert wine?

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

**[10]**

- a) What is fortified wine? Discuss it's various styles.
- b) Describe known alcoholic beverages from fruits and it's significance.
- c) Enlist the various traditional and non-traditional fruits for wine making.

**P.T.O.**

**Q3)** Write a short note on any two of the following: **[10]**

- a) Retention of portion of grape sugar in wine.
- b) Harmful effects of *Botrytis cinerea*.
- c) The harmonious blends of fruits with grape wine.

**Q4)** Discuss the significance of wines made by addition of juice concentrate to a dry white wine. **[10]**

OR

Describe the technology of sparkling wine production with reference to sparkling cidars.



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SEAT No. :

P311

[Total No. of Pages : 2

[4121] - 402

T.Y. B.Sc.

WINE TECHNOLOGY

WT - 343: Wine Defects - Identification and Rectification

(Sem. - IV) (2008 Pattern)

Time : 2 Hours]

[Max. Marks : 40

*Instructions to the candidates:*

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

**Q1)** Answer the following:

[10]

- a) How H<sub>2</sub>S spoil wines?
- b) What is buffer capacity of wine?
- c) What are harsh and drying tannins?
- d) How mercaptans spoil wine?
- e) What is mycodermic flor?
- f) Enlist four wine additives.
- g) Define - Butyric acid taint.
- h) What is ropiness of wine?
- i) Define - Reduced wine.
- j) Define - 'Perception threshold' for wine aroma.

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

[10]

- a) Describe the 'concept of thresholds' used to indicate the characteristics of various aromatic compounds in wine.
- b) Describe the various types of acidity formed in wine. Explain the significance of each type.
- c) Enlist at least five additives allowed in wine making with their appropriate function.

**P.T.O.**

**Q3)** Write a short note on any two of the following:

**[10]**

- a) Cork taint.
- b) The significance of SO<sub>2</sub> as an additive in wine making.
- c) Lady Bird taint.

**Q4)** Describe the various practical techniques to solve the defects in phenolic wines. **[10]**

OR

Describe the various odoriferous volatile sulphur compounds involved in the varietal aromas of wine.



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SEAT No. :

P312

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[4121] - 403

T.Y. B.Sc.

WINE TECHNOLOGY

WT - 344: Wine Laws, Management & Taxation

(Sem. - IV) (2008 Pattern)

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

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

**Q1)** Attempt the following:

**[10]**

- a) Define:
  - i) Supplier.
  - ii) Patent.
  - iii) Broker.
- b) Wine is a kind of liquor - State true / false.
- c) List two means of transport of wines for export purpose.
- d) Write conditions of warehouse used for storage of wine.
- e) ----- & ----- taxes are applied on wine.
- f) Who can wine directly to consumer.
- g) Wine does not have expiry date - state true/false.
- h) State two laws that govern wine sales.

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

**[10]**

- a) Write characteristics of an ideal patent.
- b) Explain role of broker.
- c) Write difference between distributor and retailer.

**P.T.O.**

**Q3)** Write short notes on (any two):

**[10]**

- a) Patent.
- b) Taxation of wine.
- c) Wine supplier.

**Q4)** Attempt any one of the following:

**[10]**

- a) Explain state laws governing shipping of wine.
- b) Describe about product and process patent in detail.





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SEAT No. :

P313

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[4121] - 404

T.Y. B.Sc.

WINE TECHNOLOGY

WT - 345: Wine Market & Marketing

(Sem. - IV) (2008 Pattern)

*Time : 2 Hours]*

*[Max. Marks : 40*

*Instructions to the candidates:*

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

**Q1)** Attempt the following:

**[10]**

- a) What is management?
- b) Define marketing segment.
- c) List two leading wine producing companies in India.
- d) Write role of distributor.
- e) Write contents of label on wine bottle.
- f) List different kinds of wines.
- g) Write various packaging techniques of wine.
- h) What is wine appreciation?
- i) Define branding.
- j) What is Enomatic system?

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

**[10]**

- a) What are essential components of marketing? Explain any one with respect to wine.
- b) Describe advertising as a way of marketing.
- c) What are weak points of wine marketing?

**P.T.O.**

**Q3)** Write short notes on (any two):

**[10]**

- a) Wine & Indian culture.
- b) Wine export.
- c) Custom duties.

**Q4)** Attempt any one of the following:

**[10]**

- a) Describe market segmentation with respect to
  - i) Gender segmentation.
  - ii) Taste and presentation.
- b) Write an essay on Indian Wine Market.

