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[3620-A]-201
B.Sc. (Applied) (Semester - 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 diagram wherever necessary.***

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

a) The alcohol content of table wine is _____ % by volume.

b) Define dry wine.

c) Enlist the principal sugars present in grape must.

d) Name the organic acids responsible for "tartness".

e) What are glucophilic yeasts?

f) Write the difference between champagne and other carbonated wines.

g) State true or false

i) It is possible to produce white wine from red grape varieties.
ii) Methanol is not generated due to microbial activity.

h) What is the reason for roasted nut aroma of sherry wine?

Q2) Attempt any FOUR of the following : **[16]**

a) Enlist the varieties of grapes used in the making of white wine.

b) Write the components present in red wine.

c) What is the difference between making of red wine and white wine?

d) Explain the difference between still wine and sparkling wine.

e) Write a short note on preparation of yeast starter.

P.T.O.

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

a) Define Rose wine. Explain its method of production as compared to red wine.

b) Explain the process and significance of malo-lactic fermentation in wine making.

c) Draw the flowchart for the production of white wine.

Q4) Write notes on (any TWO) : **[16]**

a) Describe various criteria used for the sensory evaluation of wines.

b) Enlist various types of fortified wines. Describe production of any one.

c) Enlist different red grape varieties and describe the characteristics of any four.

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

a) Describe the production of red wine with respect to lay-out, pretreatment of must and fermentation.

b) Define sparkling wines and with the help of flowchart describe its production.

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[3620-A]-202
B.Sc. (Applied) (Semester - II)
WINE TECHNOLOGY
AWT-202 : The Post Fermentation Operations & Wine Appraisal

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

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

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

a) Define pasteurization.

b) What are fortified wines?

c) Define must.

d) What is ullage?

e) Write two examples of killer yeast.

f) What are fining agents?

g) State two major changes in wine ageing.

h) What is toasting of barrel?

Q2) Attempt any FOUR of the following : **[16]**

a) Explain microbial stabilization process in wine.

b) What is olfactory evaluation? What is its significance?

c) Explain extraction of phenolic compounds from grapes into wine.

d) Explain preparation of bottling.

e) Describe importance of maceration of red wine making.

Q3) Write short notes (any FOUR) : **[16]**

a) Killer yeast.

b) Effect of barrel on red wine making.

c) Fining of wine.

d) Wine oxidation.

e) Rapid maturation and ageing.

P.T.O.

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

a) Describe the effect of Botrytis Cinerea in wine making.

b) What is toasting? State barrel specification.

c) Describe stabilization of wine with regard to metallic case.

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

a) Describe general properties & uses of SO_2. Add a note on methods of SO_2 application.

b) Explain maturation of wine in Oak barrels with respect to flavour, aeration & extraction of wood compounds.

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[3620-A]-203
B.Sc. (Applied) (Semester - 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) ***All questions carry equal marks.***
3) ***Draw neat diagram wherever necessary.***

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

a) What is French Paradox.

b) Write the criteria for patenting.

c) Write the formula for gross profit ratio.

d) What is marketing segmentation?

e) Define bioinformatics.

f) Enlist the types of market for wine.

g) Enlist the different non traditional fruits for wine making.

h) Define patent.

Q2) Attempt any FOUR of the following : **[16]**

a) Explain toxic compounds which can be present in wine making.

b) What is direct marketing? Write it's importance.

c) Describe various benefits of advertising.

d) Describe the metabolism and absorption of alcohol.

e) Describe the prospects of wine production in India.

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

a) Describe the market segmentation with example.

b) Describe the general regulations of wine laws.

c) Describe the role of bioinformatics in wine marketing.

P.T.O.

Q4) Write notes on (any TWO) : **[16]**

a) Winery's waste utilization.

b) International marketing of wine.

c) Labeling of wine.

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

a) Describe in detail sales promotion techniques and methods.

b) What is marketing environment? Explain various categories of marketing environment.

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[3620 - A]- 101

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 labeled diagrams wherever necessary.***
3) ***All questions carry equal marks.***

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

a) Enlist important pests of the grapes.

b) Enlist the rootstock used for propagation of grapes.

c) Define organic farming.

d) Which are the major grapes growing areas of India.

e) Enlist the propagation techniques in grape.

f) Varieties of grape for wine making and resin making.

g) Define Planting density.

h) Define fertigation.

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

a) Canopy management.

b) Pruning of grapevine.

c) Pest management in grapevine.

d) Physical properties of soil.

e) Packaging and grading of grapes.

Q3) Answer the following (any two) : **[16]**

a) Write the harvesting indices of grape for wine making.

b) Write the commercial classification of grape for wine making.

c) Define girdling. Write its importance in grapevine.

P.T.O.

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

a) Define training. Explain telephone and kniffin system of training.

b) Describe the biochemical changes occurring during ripening of grapes.

c) Describe present scenario of viticulture with old world and new world of wine.

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.

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[3620 - A] - 102
B.Sc. (Applied)
WINE TECHNOLOGY
AWT - 102 : Wine Microbiology

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

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

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

a) State whether the statement is 'True' or 'False'. "Killer yeast kill the contaminants in wine".

b) State whether the statement is 'True' or 'False'. "Wine is produced during the stationary phase of growth of a yeast culture".

c) State whether the statement is 'True' or 'False'. "Pasteur effect is seen only in wine yeast".

d) State the difference between alive biomass and active biomass.

e) Name the organism that produces a film on wine during its spoilage.

f) Define "Water Activity".

g) What are wine florettes?

h) Name two volatile acids produced in wine spoilage.

Q2) Write short notes on <u>any four</u> of the following : **[16]**

a) Buffering capacity of grape must.

b) Sulfitation of grape must.

c) Sporulation in wine yeast.

d) <u>Botrytis</u> <u>cinerea</u> infection of grape must.

e) Pseudomycelium formation in yeast.

Q3) Attempt <u>any two</u> of the following : **[16]**

a) Describe the effects of malo-lactic fermentation in wine production.

P.T.O.

b) Draw the pathway for conversion of sugar to ethanol.

c) Explain the different types of acidities produced in wine.

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

a) Describe two methods of cell mass determination.

b) Describe two methods of fruit preservation.

c) Describe the experiment to determine the growth phases of a yeast culture.

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

a) Draw and explain the metabolism of nitrogenous compounds by yeasts during wine fermentation.

b) Enlist and explain the factors that affect wine quality.

Total No. of Questions : 5] **[Total No. of Pages : 2**

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[3620 - A]- 103
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) Name the equipments of fermenter used for aeration and agitation.

b) Define batch fermentation.

c) State true or false : During wine making, as the fermentation progresses sugar is consumed and CO_2 is released.

d) Enlist the fruits for wine making.

e) Write the use of tartaric acid in wine making.

f) What is stock culture?

g) Write any two examples of inorganic nitrogen sources.

h) What is the importance of buffers in media.

Q2) Write short notes on any four of the following : **[16]**

a) Steady state fermentation.

b) Antifoam agents.

c) Non-alcoholic wines.

d) Precursors and growth factors.

e) Must preparation.

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

a) Explain the method of monitoring and control of pH and temperature during fermentation process.

P.T.O.

b) Enlist the raw materials used in wine making. Compare alcohol fermentation by yeast and z.mobilis.

c) Describe cleansing and sanitation methods for the equipments of winery.

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

a) Describe how various parameters are monitored and controlled during wine manufacturing process.

b) Draw the layout of fermentation plant.

c) Describe sterilization of media by moist heat.

Q5) Describe the process of inoculum development and recovery of fermentation products. **[16]**

OR

Describe various types of raw materials used in the fermentation processes.