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[3920]-1

F.Y. B.Sc.

WINE TECHNOLOGY

WT - 101 : Microbiology

(Paper - I)

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 labeled diagrams wherever necessary.*

Q1) Attempt the following :

[16]

- a) Enlist the modes of DNA replication.
- b) Name two rod shaped bacteria.
- c) Write the use of condenser in light microscope.
- d) Name the locomotary organ present in bacteria.
- e) Write the names of any two differential media.
- f) Yeasts are _____
 - i) Eukaryotic, unicellular
 - ii) Eukaryotic, multicellular
 - iii) Prokaryotic, unicellular
 - iv) Prokaryotic, multicellular
- g) Define fermentation.
- h) Name any two disinfectants.

Q2) Write short notes on (Any four) :

[16]

- a) Degeneracy of genetic code.
- b) Conjugation.
- c) Factors affecting yeast growth.

- d) Crabtree effect.
- e) General characters of bacteria.
- f) Principle of phase contrast microscope.

Q3) Describe in detail (Any two) : **[16]**

- a) Work of Robert Hooke in the discovery of microbial world.
- b) Nutritional classification of bacteria.
- c) Messelson and Stahl's experiment.

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

- a) What are mutations? Explain in detail the mechanism of action of mutagen 5 bromouracil.
- b) Describe the methods used for the enumeration of yeast cells.
- c) Explain the principle & working of Bright field Microscope.

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

- a) Explain in detail the different phases of growth.

OR

- b) With the help of neat labeled diagram explain the process of transduction.



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[3920]-2
F.Y. B.Sc.
WINE TECHNOLOGY
WT - 102 : Microbiology
(Paper - II)

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 labeled diagrams wherever necessary.*

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

- a) Killing/Removal of infectious organisms is called _____.
- b) Name any two antifoam agents.
- c) Enlist different types of spargers.
- d) What is stock culture?
- e) Define 'D' value.
- f) Name any two crude 'N' sources used in fermentation media.
- g) What is standard culture.
- h) Write the names of two disinfectants.

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

- a) Strain improvement.
- b) Upstream processing.
- c) Preservation of cultures on slant.
- d) Scope of industrial microbiology.
- e) Types of fermenters.
- f) Fumigation.

Q3) Answer the following (Any four) : **[16]**

- a) Comment on construction of typical fermenter.
- b) Diagrammatically explain the process of inoculum preparation.
- c) Explain historical developments in fermentation industry.
- d) Explain 'Z' value.
- e) List any four culture collection centers. Explain their objectives.

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

- a) Explain in detail primary screening.
- b) Name the components used in fermentation media and give their uses.
- c) What is agitation? How is it brought about in fermentation process?

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

- a) What is sterilization? Explain in detail sterilization by radiations.

OR

- b) Define fermentation. Explain in detail different types of fermentations.



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[3920]-3
F.Y. B.Sc.
WINE TECHNOLOGY
WT - 104 : Botany
(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 labeled diagrams wherever necessary.*

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

- a) Define fertilization.
- b) Enlist the parts of flower.
- c) Give any two significance of inflorescence.
- d) Define transpiration.
- e) What are the branches of Botany?
- f) What is Seed?
- g) Give any two significance of Photosynthesis.
- h) Define flower.

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

- a) Explain the structure of embryo sac.
- b) Give the objectives of Taxonomy.
- c) What is corolla? Describe any two types of corolla.
- d) With neat labeled diagram explain the structure of Chloroplast.
- e) Describe the structure of stomata.
- f) What is mitosis? Explain any two stages of mitosis.

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

- a) Cell cycle.
- b) Different parts of plant.
- c) Biosynthetic phase.
- d) Symmetry of flower.
- e) Cymose inflorescence.
- f) Pollen germination.

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

- a) Give the significance and objectives of meiosis.
- b) Describe the pathway of translocation.
- c) What is thalamus? Explain different forms of thalamus.
- d) With neat labeled diagram explain the structure of Ovule.

Q5) Explain Mendel's law of inheritance with reference to monohybrid ratio. [16]

OR

What is Respiration? Explain glycolysis cycle.



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[3920]-4
F.Y. B.Sc.
WINE TECHNOLOGY
WT - 105 : Botany
(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) *Neat diagrams must be drawn wherever necessary.*

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

- a) Enlist elements of phloem. Give function of phloem.
- b) What are secretory tissues?
- c) Give two objectives of propagation.
- d) Define plant tissue culture.
- e) Name two plant products and their uses.
- f) Define plant anatomy.
- g) Give two criteria used in wood identification.
- h) Give two applications of anatomy in taxonomy.

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

- a) Give short account of nutrient medium and aseptic conditions in plant tissue culture.
- b) Give role of tuber as propagating material with suitable example.
- c) What is meristem? Write about intercalary meristem.
- d) Give importance of ornamental plants.
- e) Describe properties and uses of any two timber woods.

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

- a) Scope of plant anatomy.
- b) Seed propagation.
- c) Importance of plants.
- d) Resin and dye.
- e) Importance of anatomy in pharmacognosy.

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

- a) Describe the structure and function of xylem.
- b) Describe any two methods of layering.
- c) Give active principle, plant part used and uses of cinnamon and aloe.

Q5) Describe the internal structure of typical dicot stem and monocot stem. **[16]**

OR

Describe in detail any two simple tissues. Add a note on their functions.



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[3920]-5
F.Y. B.Sc.
WINE TECHNOLOGY
WT - 107 : Biochemistry - I
(Paper - I)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

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

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

- a) Draw a neat labelled diagram of eukaryotic cell.
- b) What is pKa?
- c) Define denaturation.
- d) What are coenzymes?
- e) Water is a universal solvent, explain.
- f) Define peptide bond.
- g) What is feed back inhibition?
- h) Draw the structure of Maltose.

Q2) Answer the following questions (any 4) : **[16]**

- a) Give a note on yeast cell components.
- b) Discuss the applications of spectrophotometry.
- c) Give a note on functions of carbohydrates.
- d) What are zymogens?
- e) Give a short note on deficiencies of Riboflavine.
- f) What is saponification?

Q3) Answer the following questions (any 4) : **[16]**

- a) Explain lock and key hypothesis.
- b) What are allosteric enzymes?
- c) Explain Biochemistry of bacterial cell components.
- d) Describe the effect of pH on enzyme activity.
- e) What is oxidation-reduction potential?
- f) Explain secondary structure of proteins.

Q4) Answer the following questions : **[16]**

- a) Give detail classification of complex lipids.
- b) What is the effect of competitive inhibitors on enzyme activity.

OR

- a) In brief discuss about globular proteins.
- b) Classify carbohydrates.

Q5) Answer the following question (any 1) : **[16]**

- a) Explain principle, working and applications of chromatography.
- b) Give principle working and applications of electrophoresis.



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[3920]-6

F.Y. B.Sc.

WINE TECHNOLOGY

WT - 108 : Biochemistry - II

(Paper - II)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

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

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

- a) What is free energy?
- b) T.C.A is a amphibolic pathway explain.
- c) Draw the structure of deoxiribose sugar.
- d) Enlist the significance of secondary metabolites.
- e) Define oxidative phosphorylation.
- f) Give any one anplerotic reaction of TCA cycle.
- g) What is oxidation potential?
- h) Define the term translation.

Q2) Answer the following questions (any 4) : **[16]**

- a) Gluconeogenesis occur in liver, explain.
- b) What is crabtree effect?
- c) Give a role of amino acids in stabilization of protein.
- d) Explain importance of homeostasis.
- e) Second law of thermodynamics is not applicable to biological system, explain.
- f) Describe the concept of mass balance.

Q3) Answer the following questions (any 4) : **[16]**

- a) Explain Tryptophan Operon.
- b) Give structural features of ATP.
- c) Explain Tertiary structure of protein.
- d) Describe the structure of F_0F_1 AT pase.
- e) What do you mean by salvage pathway.
- f) With reaction explain about substrate level phosphorylation.

Q4) a) Discuss the steps involved in β -oxidation. **[8]**

b) Give account on negative regulation of transcription. **[8]**

OR

a) Explain in detail regulation of TCA cycle. **[8]**

b) Describe the four complexes of ETC. **[8]**

Q5) Answer the followings (any 2) : **[16]**

- a) Describe the detail mechanism of anaerobic fermentation.
- b) Discuss formation of ribose sugar from hexose.
- c) Explain in detail synthesis of glucose from pyruvate.



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[3920]-7

F.Y. B.Sc.

WINE TECHNOLOGY

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

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

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

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

- a) Define :
 - i) Wine.
 - ii) Vinification.
 - iii) Tractability.
- b) List two hybrid varieties of grapes.
- c) Which flavors are contributed by oak to wine?
- d) What is Must?
- e) Write components of fortified wine.
- f) Write composition of soil.

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

- a) Describe functions of various parts of grape vine.
- b) Explain importance of terrior in viticulture.
- c) Write varietal classification of wine.
- d) Comment on wine produced from non grape fruits.
- e) Describe importance of seasoning of oak wood.

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

- a) Climatic conditions & wine quality.
- b) Wine making in India.
- c) Barrel making.

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

- a) Write generic classification of wine. Explain. How grape variety affects flavors of wine?
- b) What is cultivars? Describe how hybrid varieties of grape vine are developed.
- c) Comment on history of wine making.

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

- a) Describe white wine production with respect to following points.
 - i) Raw materials.
 - ii) Fermentation medium.
 - iii) Ageing.
 - iv) Characteristics of white wine.
- b) Describe different automation operations in wine making.



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[3920]-8

F.Y. B.Sc.

WINE TECHNOLOGY

WT - 111 : Wine Technology - II

(2008 Pattern) (Paper - II)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

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

Q1) Attempt the following :

[16]

- a) Define :
 - i) Biodynamic wines.
 - ii) Sensory evaluation.
 - iii) Global warming.
- b) What is sensory perception?
- c) List different foods used during wine tasting.
- d) Write role of fining agents in wine making.
- e) List different wine styles.
- f) Write two advantages of closures.

Q2) Attempt any Four of the following :

[16]

- a) What is precision viticulture? Explain in brief.
- b) Comment on current wine marketing scenario.
- c) Describe different types of bottles used for wine storage.
- d) Explain wine laws.
- e) Compare wine with carbonated drinks.

Q3) Write short notes on (any two) :

[16]

- a) Cellar.
- b) Rose worthy score card.
- c) Vintage & wine quality.

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

- a) Describe economic significance of grape growing & wine making.
- b) Explain how with the help of senses wine quality is evaluated?
- c) Describe traditional wine making process.

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

- a) Explain organic wines with respect to :
 - i) Importance.
 - ii) Process of making.
 - iii) Applications.
 - iv) Advantages & disadvantages.
- b) Explain principles & operations of different equipments used in wine making.



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[3920]-101

S.Y. B.Sc.

WINE TECHNOLOGY

**WT - 211 : Yeast Culture Technology - I
(2008 Pattern) (Semester - I)**

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) What is fructophilic yeast?
- b) Write two pathogenic fungi of grape wine.
- c) What is secondary screening of yeast strain?
- d) Write the role of cryoprotective agents.
- e) Define - Pure culture.
- f) Name the causative agent of crown gall in grape.
- g) _____ yeast is used for the production of table wine.
- h) What is freeze-drying?
- i) What is axenic culture?
- j) State - True/False - Roll tube method is used for cultivation of anaerobic bacteria.

Q2) Attempt any two of the following :

[10]

- a) Describe principle, methodology and advantages of lyophilization.
- b) What is spoilage? Explain spoilage of wine by molds.
- c) Explain the objective and methodology for targeted screening of yeast strain.

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

- a) Curing of wine.
- b) Normal micro-flora of grapewine.
- c) Autolysis of yeast culture.

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

- a) Explain the principle and methodology for preservation of strain characteristics.
- b) Describe importance of yeast strains in wine making.



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[3920]-102

S.Y. B.Sc.

WINE TECHNOLOGY

WT - 212 : Vineyard Technology - I

(2008 Pattern) (Semester - I)

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) What are weeds?
- b) Write any one function of soil.
- c) Name any two wine grape varieties.
- d) Give any one physical property of soil.
- e) What is canopy?
- f) Give any two merits of training.
- g) Which temperature is best for the growth of grapes.
- h) Enlist the macronutrients.
- i) What is soil?
- j) Enlist any two types of soil.

Q2) Attempt any two of the following :

[10]

- a) Explain the principals of weathering of rock and material.
- b) Comment on origin of grape vine in India.
- c) What is pruning? Explain its effect in canopy management.

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

- a) Solar radiation.
- b) Soil colloids.
- c) Pit method of grape plantation.

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

OR

Explain the methods of irrigation system and application of fertilizers in wine grape.



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[3920]-103

S.Y. B.Sc.

WINE TECHNOLOGY

**WT - 213 : Biochemistry - I
(2008 Pattern) (Semester - I)**

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.*

Q1) Attempt the following :

[10]

- a) Define liquid shear.
- b) What are sterols?
- c) Write the principle of centrifugation.
- d) Define homogenisation.
- e) Enlist 2 metabolites produced in wine.
- f) Draw the structure of malic acid.
- g) What are volatile phenolics?
- h) Define crystallization.
- i) Give two examples of cationic exchangers.
- j) What is agitation?

Q2) Write short notes on (Any two) :

[10]

- a) Osmotic shock.
- b) Malolactic fermentation.
- c) Solvent recovery.

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

- a) What are non volatile phenolics?
- b) Explain the importance of SO_2 & alcohol contents in MLF.
- c) Draw diagram of basket centrifuge.

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

- a) Give in detail production of acetic acid by yeast.
- b) Describe Gel filtration chromatography.



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[3920]-104

S.Y. B.Sc.

WINE TECHNOLOGY

WT - 214 : Fermentation - I

(2008 Pattern) (Semester - I) (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 labelled diagrams wherever necessary.*

Q1) Attempt the following :

[10]

- a) Baffle is used to prevent _____.
- b) What is man-hole?
- c) Comparatively batch fermentations have lower risk of contamination problems. (True/False).
- d) State the need of aseptic conditions during fermentation manipulation.
- e) Uses of sensor probes.
- f) Why stainless steel is preferable material for fermenter construction?
- g) Define "Head-space".
- h) State the causes of foaming during fermentation.
- i) What is fed-batch fermentation?
- j) What is feed port?

Q2) Attempt any two of the following :

[10]

- a) Describe the strategies used in repair and maintainance of fermenter.
- b) Diagrammatically show different aerator and agitator design.
- c) Describe sterilization of fermenter and air supply.

Q3) Short notes on (Any two) : **[10]**

- a) Fabrication and machining techniques.
- b) Piping and valves.
- c) Factor affecting design of fermenter.

Q4) Explain various fermenter configuration **[10]**

OR

Describe any two utilities required for fermentation.



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[3920]-105

S.Y. B.Sc.

WINE TECHNOLOGY

WT - 215 : Fermentation - II

(2008 Pattern) (Semester - I)

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 labelled diagrams wherever necessary.*

Q1) Answer the following (All questions compulsory) :

[10]

- a) Enlist the causes of yeast cell autolysis.
- b) Define anaerobiosis.
- c) Immobilization by crosslinking molecules of enzyme is most commonly brought about by the action of
 - i) Aliphatic lipids.
 - ii) Gluteraldehyde.
 - iii) Polyacrylanide.
 - iv) DEAE sephadex.
- d) Minimum temperature used for media sterilization is _____.
- e) What are precursors?
- f) Give the reasons for control of pressure in fermentation process.
- g) What is immobilization?
- h) Enlist foam control agents.
- i) Define buffering capacity.
- j) Enlist the various additives used in wine fermentation.

Q2) Explain in detail (Any two) : **[10]**

- a) Encapsulation of whole cells.
- b) Computer applications in process control.
- c) Significance of D value.

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

- a) Write the applications of immobilised cells & enzymes.
- b) Diagrammatically illustrate the process of continuous sterilization of media.
- c) What is inoculum? Explain types of inoculum.

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

- a) What is media optimization? Explain in detail the Plackett Burman design.
- b) Explain in detail measurement & control of process parameters with respect to
 - i) pH and
 - ii) O-R potential.



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[3920]-106

S.Y. B.Sc.

WINE TECHNOLOGY

WT - 216 : Wine Technology - I

(Theory) (2008 Pattern) (Semester - I)

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) Rose wine.
 - ii) Wine style.
 - iii) MLF.
- b) State True/False
 - i) Medium used for wine making is called must.
 - ii) For making of white wine extraction of pigments from skin of grapes is important.
 - iii) Shiraz & cabernet are the yeast varieties for red wine making.
- c) List components of sparkling wine.
- d) Write names of two pigments present in grapes.
- e) Write two bottle varieties for wine packaging.
- f) What is down stream process?

Q2) Write short notes on (Any two) :

[10]

- a) Humidity & quality of wine.
- b) Active yeast.
- c) Wine ageing.

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

- a) Describe rose wine from white vinification.
- b) Explain role of fining agents in wine clarification.
- c) Explain importance of malo-lactic fermentation.

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

- a) Describe with the help of flow sheet red wine making.
- b) Describe influence of package practices on quality of wine.



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[3920]-201

S.Y. B.Sc.

WINE TECHNOLOGY

**WT - 221 : Yeast Culture Technology
(Semester - II)**

Time : 2 Hours]

[Max. Marks : 40

Instructions to the candidates:

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

Q1) Attempt the following :

[10]

- a) Define :
 - i) Starter cultures.
 - ii) Wine
 - iii) Enzymes.
- b) What is anaerobiosis?
- c) List two aromatic substances.
- d) Write chemical reaction catalysed by alcohol dehydrogenase.
- e) Write two names of killer yeasts.
- f) Write action of amylase.
- g) What is Maceration?
- h) Yeast requires alkaline pH for growth - State True/False.

Q2) Attempt any two of the following :

[10]

- a) Explain sources & significance of phage contamination.
- b) Describe different phases of yeast growth.
- c) How Yeast enzymes helps in improving quality of wine.

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

- a) Yeast & Flavor.
- b) Killer factors.
- c) Aromatic substances.

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

- a) Describe different stages of yeast starter culture production.
- b) Explain how degree of anaerobiosis plays important role in alcoholic fermentation.



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[3920]-202

S.Y. B.Sc.

WINE TECHNOLOGY

**WT - 222 : Vineyard Technology - II
(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 labeled diagrams wherever necessary.*

Q1) Attempt the following :

[10]

- a) What is short berry?
- b) What is IPM?
- c) Name the method of evaluation of organic acid.
- d) Give any two scientific names of vine diseases.
- e) What are aromatic compounds?
- f) Give any two advantages of power trailer.
- g) Define cuttings.
- h) What is scion?
- i) Name the wine varieties.
- j) Write any two changes in grape during maturity.

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

[10]

- a) What are pests? Give their control measures.
- b) Describe different nutrient deficiency and give their preventive measures.
- c) What are the disorders? Describe water berry.

Q3) Write notes on (Any Two) :

[10]

- a) Vegetative cycle.
- b) Grape berry.
- c) Vintage planning.

Q4) What is propagation? Describe grafting and budding propagation of vines in India. **[10]**

OR

What is harvesting? Describe hand harvesting and give its advantages and disadvantages.



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[3920]-203

S.Y. B.Sc.

WINE TECHNOLOGY

WT - 223 : Biochemistry - II

(Semester - II) (Paper - II)

Time : 2 Hours]

[Max. Marks : 40

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 :

[10]

- a) Define aging of wine.
- b) What is turbidity?
- c) Draw the structure of yeast cell.
- d) Define anaerobic glucose oxidation.
- e) Name two methods of stabilization of wine.
- f) Write structure of citric acid.
- g) What is extraction?
- h) Define wine propensity.
- i) What is food spoilage?
- j) Give reason for H₂S removal during wine formation.

Q2) Answer the following (Any Two) :

[10]

- a) Explain sediment identification in wine.
- b) Describe the mechanism of turbidity formation in wine.
- c) What is mechanical damage?

Q3) Answer the following (Any Two) : **[10]**

- a) Explain uses of American oak in wine.
- b) Describe enzymatic spoilage of wine.
- c) Write characteristics of French oak.

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

- a) Write an essay on Indian wine making.
- b) Explain the good storage conditions for wine.



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[3920]-204

S.Y. B.Sc.

WINE TECHNOLOGY

WT - 224 - Waste Treatment - I

(Semester - II)

Time : 2 Hours]

[Max. Marks : 40

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 (all sub questions are compulsory) : **[10]**

- a) Define - ThOD.
- b) What is flow-equilization?
- c) What is the importance of DO in wastewater.
- d) Define - Biosorption.
- e) Enlist four granular media used in filtration.
- f) How ozone cause disinfection?
- g) Method for reactivation of granular activated carbon.
- h) What is cationic ion-exchange column?
- i) Define - F/M ratio.
- j) Define - Rotating biological contactors.

Q2) Attempt any two of the following : **[10]**

- a) Describe the various techniques for the estimation of solid contents of an wastewater.
- b) Explain the different on-line and off-line mixing devices used during wastewater treatment.
- c) Explain the chemical reactions taking place during chemical precipitation and flocculation processes.

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

- a) The objectives of wastewater treatment.
- b) The volatile organic compounds.
- c) The process of nitrification and denitrification.

Q4) Describe the various aerobic suspended biological methods for wastewater treatment. Write the advantages of each method. **[10]**

OR

Describe the principals involved in granular medium filtration. Explain the different types of filters used in wastewater treatment.



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S.Y. B.Sc.

WINE TECHNOLOGY

WT - 225 - Waste Treatment - II

(Semester - II)

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 (all sub questions are compulsory) : **[10]**

- a) Enlist the chemicals used for phosphorus removal.
- b) Define - Recalcitrants.
- c) Draw the diagram of plug-flow in-vessel system of composting.
- d) Enlist the advantages of in-situ bioremediation.
- e) Define - toxic compounds.
- f) Draw the figure of ion-exchange column.
- g) Enlist dissolved inorganic compounds.
- h) Give reason for thermophilic stage in composting.
- i) Define - EIA.
- j) Enlist species used in phytoremediation.

Q2) Attempt any two of the following : **[10]**

- a) Describe the biological removal of phosphorus.
- b) What are xenobiotic compounds? How the aliphatic and aromatic hydrocarbons are removed from the waste water.
- c) Explain the principal, advantages and disadvantages of electrodialysis technique used for the removal of dissolved inorganic compounds.

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

- a) Describe the various methods of composting.
- b) Describe the techniques for the disposal of treated sludge.
- c) Explain the process of bioaugmentation.

Q4) Describe the various steps involved in sludge treatment. Explain sludge thickening in detail. **[10]**

OR

Describe in-situ bioremediation. Explain the microbial bioremediation in detail.



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S.Y. B.Sc.

WINE TECHNOLOGY

WT - 226 - Wine Technology - II

(Semester - II)

Time : 2 Hours]

[Max. Marks : 40

Instructions to the candidates:

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

Q1) Attempt the following :

[10]

- a) Define
 - i) Wine
 - ii) Fermentation.
 - iii) Wine style.
 - iv) Clarification.
 - v) Aging.
- b) State T/F - white wine can be produced from non grape fruits.
- c) List two white wine varieties.
- d) _____ Yeast strain is used for white wine production.
- e) Write two filter aids.
- f) Write two fining agents.

Q2) Attempt any two of the following :

[10]

- a) Describe white wine varieties.
- b) Compare between White & Red wine.
- c) Comment on white wine composition.

Q3) Write short notes on (any two) :

[10]

- a) Blending.
- b) Stabilisation of white wine.
- c) Sealing of white wine bottle.

Q4) Attempt any one of the following :

[10]

- a) Describe with the help of flow sheet white wine production.
- b) Describe physiology of grapes with respect to
 - i) Components.
 - ii) Varieties.
 - iii) Sensory correlation of grape component with wine.



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[3920]-207

S.Y. B.Sc.

OPTIONAL ENGLISH

Enriching Oral and Written Communication in English

(Semester - II) (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) You applied for the post of a Chemist in a pharmaceuticals company and have been asked to appear for an interview. Write down five questions that you could be asked and their possible answers regarding qualification, experience, salary, contributions, plans in the concerned field etc.
- b) Imagine that you are one of the members attending a meeting. State some of the points that will help you make your participation valuable.
- c) Sudhir, Yogendra, Pallavi and Alka are participants in a group discussion on the topic 'Education System Today'. Write a transcript of the discussion using the following points :

Introduction – education today and in the past – growth in literacy – growth in higher and professional education – female education – less job oriented – more exam oriented – human values – fulfilment of aims and objectives – future – expectations – conclusion.

Q2) Attempt **any two** of the following : **[10]**

- a) Write a paragraph of about 15 sentences on a 'Memorable Experience in College'.
- b) Punctuate the following dialogue.

Customer what are you doing ive been waiting for half an hour now do you want me to wait for ever
waiter im sorry sir ill serve you tea in a few minutes.
customer but i cant wait any more i have to go to s p college
waiter yes sir here it is

- c) Summarize the following paragraph to one third of its length. Suggest a suitable title. Prepare a rough draft also.

Our forefathers would have been astonished at the description of modern wars. They fought wars with spears, swords, bayonets and guns. Theirs were the wars of physical strength, and the party superior in strength won the war. Battles were mostly pitched battles and the duration of war was comparatively small. Those were the wars of the armies and not of the people. Even during a war, people carried on their work, while armies fought on battlefield. Compared with modern wars those wars were no better than street fight.

Science has completely changed the weapons of modern warfare. Bombers and fighters have lifted the war to the sky. Ant-aircraft guns defy them. Torpedoes have worked havoc in the oceans. The two men submarines have taken a heavy toll of ships. The demon like tanks and mechanised army units has made the small guns ineffective. There are huge warships, destroyers, mine ships and aircraft carriers which work in cooperation with the land forces and the air force. Parachute landing of troops has been successfully tried by various warring nations.

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

- a) Choose the more powerful of the two words or phrases given.
- i) The house was _____ (partly/partially) destroyed in the cyclone.
 - ii) The children on the bus _____ (talked/chatted) constantly on their way home.
 - iii) A child _____ (rolled down/fell down) the steps and hit against the banister.
 - iv) Listening to Pandit Bhimsen Joshi was _____ (a good/enriching) experience.
 - v) An old woman _____ (plodded/walked) up the hill.
- b) Write a review of a TV serial that you liked. Take into account the following points : plot, character, setting, theme, message, social/moral implication, your opinion.
- c) Write a description of grandmother taking into consideration her personality, character , mood and thoughts.

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

- a) Send an e-mail to your friend inviting him/her to attend a National Conference on Science organised by your college. Ask him/her to prepare and present a paper.
- b) Prepare 5 slides of about 20 words each for power point presentation that you would like to make in a function on the topic. 'N1H1 Swine Flu' You can make use of the points: Introduction – symptoms – causes – effects – fatal – remedies – precaution – social approach.
- c) You want to discuss the results declared by the university with your friend who is enjoying holidays in his native place. Write a short telephone conversation on this situation.



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S.Y. B.Sc.

WINE TECHNOLOGY

OPTIONAL ENGLISH

Enriching Oral and Written Communication in English

(New Course) (Sem. - I)

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 are the pathways of communication? Write in brief how effectively they can be used in an educational institution by different communicators.
- b) Write a note on how formal and informal modes of communication are useful in personal and professional life.
- c) What is 'body language'? Explain how 'body language' as means of nonverbal communication would contribute to your personal interview for the job of a sales executive.

Q2) Attempt any five of the following : **[10]**

- a) Find out meanings of the underlined words in the given sentences from the list given in the brackets.
 - i) Don't touch the oven-it is hot!
 - ii) It's a hot political situation.
(full of tension, high temperature)
- b) Use any one of the following words in separate sentences as noun and verb in order to bring out meaning : light, direct.
- c) Use the following words in your own sentences :
reservation, decision
- d) Match the synonymous words.

A	B
futile	careful
fulfil	satisfy
pause	useless
meticulous	stop

P.T.O.

- e) Choose the correct alternatives and fill in the gaps.
 - i) Sudden price rise ----- almost everyone. (effected/affected)
 - ii) He reserved two ----- on the Rajdhani express (berths/births)
- f) Make two words each with the following prefixes (any two):
re-, un-, anti-

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

- a) Find out the correct spellings (any two):
 - i) aparel, apparel appairal
 - ii) grammar, grammer, gramar
 - iii) definition, defination, definiation
- b) Identify the part of speech of the underlined words (any two):
 - i) Early train arrived early.
 - ii) They stepped on the red carpet.
 - iii) Honesty is the best policy.
- c) Match the phrasal verbs in **A** with their meanings in **B**.
A : to bring about, to bring forward
B : to make something happen, to move to an earlier date or time
- d) Provide a lexical set of four words each for the following.
garden, study room
- e) Make four words each using the letters in the following words.
budget, argument
- f) Rearrange the jumbled letters to form meaningful words with the help of hints given. (any two)
crastiyc (shortage), lsefalws (perfect), rifoveg (pardon)

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

- a) Answer **any five** of the following.
 - i) Say whether the initial sound in the following words is a vowel, a consonant or a diphthong. (any one)
start, oxygen
 - ii) Transcribe phonemically any one of the following words.
class, hang
 - iii) Mark stress in the words 'market' and 'effect'.
 - iv) Underline the stressed words in the following sentence.
He lost his key in the bus.

- v) Say whether the following sentences will be said with falling or rising tone. (any one)
Should I help you?
What time is it?
 - vi) Underline the weak forms in the following sentence.
What can I do for you?
- b) Write down short responses in the form of an utterance or two according to the situations given below. (**any five**)
- i) Suggest your friend a good shop for purchasing garments.
 - ii) Invite your friend for your birthday party.
 - iii) Decline the suggestion made by your friend to go the canteen.
 - iv) Thank a stranger for giving you valuable information on the use of internet.
 - v) Your teacher allowed you to use his books. Thank him/her.
 - vi) Your friend is appearing for a competitive exam. Encourage him/her.
- c) You want to purchase a dress item for your friend to be gifted on his/her birthday and you visit a shop. Develop a short dialogue of about fifteen utterances between you and the salesman on this situation.

