

Instructions to candidates

Duration: Two (02) hours

Number of questions: Seven (07) Structured Questions

Answer all the questions.

Mark allocation: 100

Index No.

[Empty box for Index No.]

1. a. Give four (04) main criteria for commercial Yeast strain selection.

- i.
- ii.
- iii.
- iv.

(8 mark)

b. Suggest the most suitable Yeast strain for the following beer types

- i. Ale beer
- ii. Lager

(4 mark)

c. What is meant by "Yeast degradation"?

.....
.....

(3 mark)

d. Give two (02) symptoms of Yeast degradation in beer brewing.

- i.
- ii.

(2 mark)

e. Give four (04) differences between Ales and Lager beers

	Ales	Lager
i.

ii.
iii.
iv.

(8 mark)

2. a. What do you mean by "Hopping" in beer brewing?

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.....
.....

(2 mark)

b. Explain how the addition of Hops increases the keeping time/shelf life of beer?

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.....
.....

(4 mark)

c. What is the role of alpha acids in beer brewing?

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.....
.....

(4 mark)

d. 80 IBU was printed on the label of a beer bottle.

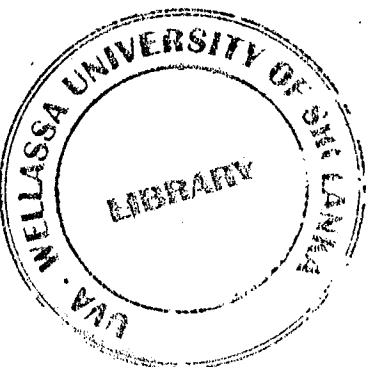
i. What do you mean by 80 IBU?

.....

ii. What type of a beer is stored in this bottle?

.....

(4 mark)



e. What are the three (03) major components of alpha acids?

- i.
 - ii.
 - iii.
- (3 mark)

f. Name two (02) commercially available hop pellets.

- i.
 - ii.
- (4 mark)

g. Give two (02) benefits of using isomerized alpha acids in beer brewing?

- i.
 - ii.
- (4 mark)*

3.

a. Define the term 'fermentation'.

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 -
- (2 mark)

b. Write three (03) benefits of fermentation.

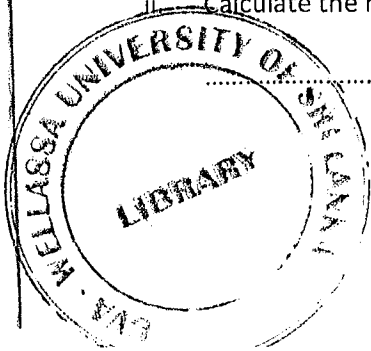
- i.
 - ii.
 - iii.
- (3 mark)

c. i. Name the energy producing reaction of fermentative microorganisms.

-
- (1 mark)

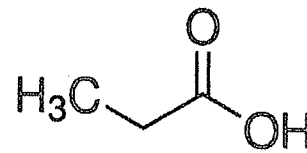
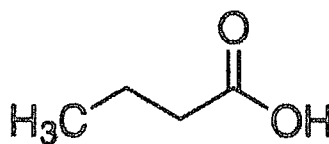
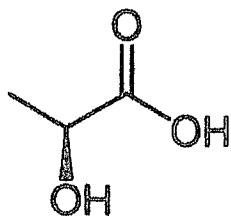
ii. Calculate the net energy yield (in the form of ATP) of the reaction mentioned in above c,i.

(4 mark)



(5 mark)

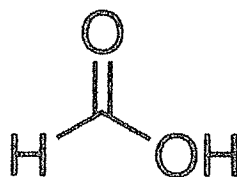
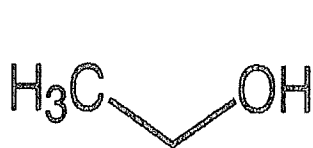
5. a. Identify the chemical compounds given bellow.



i.

ii.

iii.



iv.

v.

(5 mark)

b. Compare the products of fermentation patterns, homofermentative and heterofermentative.

(4 mark)

c. State the major benefit of amyolytic lactic acid fermentation.

(1 mark)

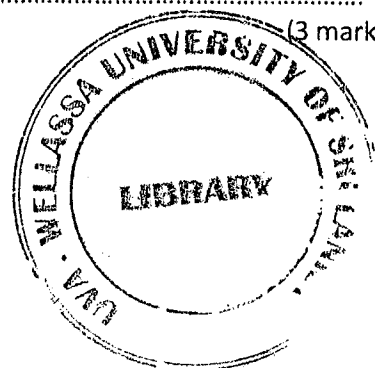
6. a. List three (03) applications of propionic acid.

i.

ii.

iii.

(3 mark)



b. Name three (03) precursors (initial chemical compounds) of wood-werkman cycle.

- i.
- ii
.....
- iii.
.....

(3 mark)

c. Name two (02) bacterial enzymes that involve in the wood-werkman cycle during the conversion of a compound to another.

- i.
- ii
.....

(2 mark)

d. Name two (02) propionic acid bacteria.

- i.
- ii
.....

(2 mark)

7. a. What is a startar culture?

.....
.....

(2 mark)

b. Define the term 'proto-coorporation' in microbes used in the fermented food manufacturing process.

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.....
.....
.....

(4 mark)

c. Describe the interaction factors between *Streptococcus themophilus* and *Lactobacillus delbrueckii* sub sp. *bulgaricus* which lead to positive effects on the yohurt taste and aroma.

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