

Instructions to candidates

Duration: One (01) hour

Number of questions: Six (06) Structured Questions

Answer all the questions.

Mark allocation: 100

Index No.

017

01. a. Briefly describe the term 'metabolomics'.

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(4 mark)

b. What is the key aim of metabolomics?

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.....

(3 mark)

c. i. What is cell turnover for metabolites excretion?

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(2 mark)

ii. What is the chemical compound responsible for the above turnover?

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(1 mark)



d. List **five (05)** factors that effect for enzymatic conversion of metabolites?

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

(5 mark)

02. a. Write **four (04)** steps of complete metabolome analysis of a microbial cell.

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

(8 mark)

b. What is the purpose of quenching solution in metabolomic analysis?

.....
.....

(1 mark)

c. List **three (03)** functions of quenching solution in metabolomic analysis.

- i.
- ii.
- iii.

(3 mark)

d. What is the most appropriate quenching method applicable for,

- i. bacteria
- ii. yeast



iii. protozoa

(3 mark)

03. a. List **three (03)** microbial metabolites used in agriculture.

i.

ii.

iii.

(3 mark)

b. List **three (03)** applications of lactic acid in food industry.

i.

ii.

iii.

(3 mark)

c. Name **two (02)** microbial metabolites used in pharmaceutical industry.

i.

ii.

(2 mark)

d. Write the **genus name** of a microbe responsible for producing the following metabolites.

Metabolite

Microbe

i. Lactic acid

ii. Gluconic acid

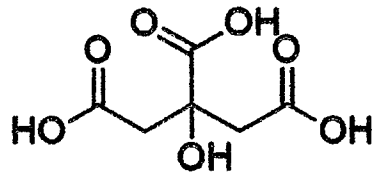
iii. Giberellines

(6 mark)

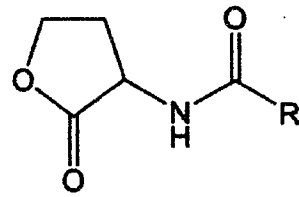


e. Identify the following types of metabolites.

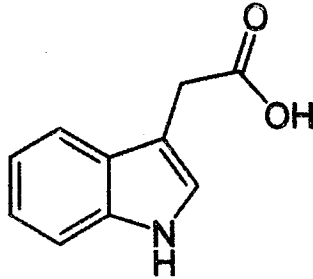
i.



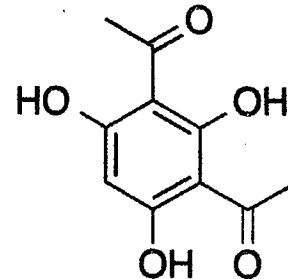
ii.



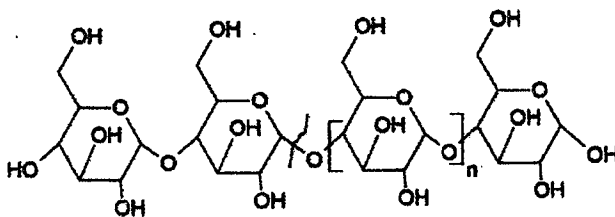
iii.



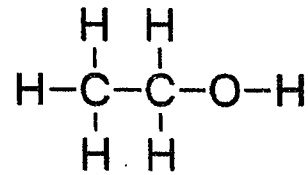
iv.



v.



vi.



(6 mark)

04. Microbes can be modulated by forming microbial biofilms to induce the metabolic activity.

a. What is a microbial biofilm?

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(5 mark)

b. What is quorum sensing?

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(5 mark)

c. Explain how Gram negative bacteria form a bacterial biofilm with the involvement of quorum sensing molecules?

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(5 mark)

05. a. Briefly define the extracting solvent.

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(2 mark)

b. List three (03) functions of extracting solvents?

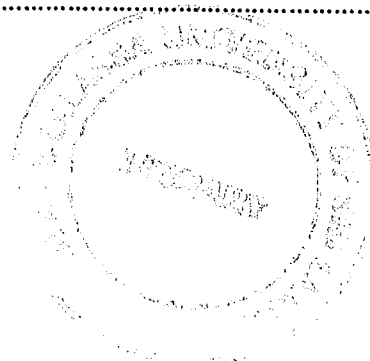
- i.
- ii.
- iii.

(3 mark)

c. List three (03) features of extracting methods?

- i.
- ii.
- iii.

(3 mark)



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(15 mark)

