

Instructions to candidates

Duration: 02 hours

Number of questions: Five (05)

Mark allocation: 100 mark

Answer all questions

- 1.
- a. Lactophenol cotton blue (LPCB) is the most widely used staining solution in the examination of yeasts and moulds. Briefly describe how the chemicals in it supports in the staining procedure.

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(5 mark)

- b. What is the main advantage of using Lactofuchsin stain in fungal staining?

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(2 mark)

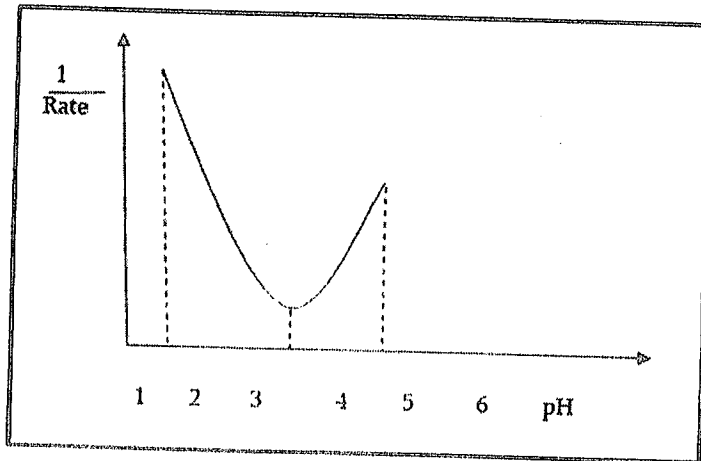
- c. "Water activity is a better index for microbial growth than water content". Briefly explain this statement.

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(5 mark)



a. An experiment has been conducted by a group of second year biology students of a university to determine the relationship between pH and the rate of an enzymatic reaction. They presented the results graphically as shown below.



i. What is the optimum pH for this reaction?

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(2 mark)

ii. One student says that at the optimum pH, the rate of the reaction is 0.2 gs^{-1} . Calculate the amount (the number of grams) of the product that can be obtained after 15 min.

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(3 marks)

b.

i. Name a laboratory test that can be used to differentiate aldose sugars from ketose sugars.

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(2 marks)



ii. Briefly explain the chemical background of the test that you have mentioned in the above question (3bi).

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(8 mark)

4.

a.

i. Identify the specimen (A). Give the common name and the scientific name.

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(4 mark)

ii. Give three recommended varieties of this crop for Uva Province.

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(6 mark)



iii. What are the recommended planting distances (in cm) of this crop?

Between rows

Between two plants

(4 mark)

iv. What is the mode of pollination of this crop?

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(2 mark)

b.

i. Identify the sample labeled as "B"

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(2 mark)

ii. Name the industry where B is a raw material.

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(2 mark)

iii. Why this raw material is used in the industry you named in (4b.ii)? Give two reasons.

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(5 mark)

5. Using the given commodity develop a fresh cut product and submit it as a 50 g pack. Label it with your index number.

(25 mark)