



**Biology**  
**Leaving Certificate**  
**Ordinary Level**

**Past Exam Questions on**  
**Bacteria, Viruses, Fungi and Yeast**

### Q13 Part (c) 2013

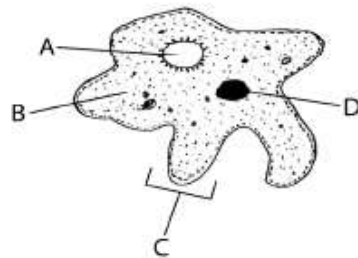
Answer the following questions in relation to an investigation you carried out into fermentation by yeast cells.

- (i) Explain what is meant by *anaerobic respiration*.
- (ii) Where in the cell does anaerobic respiration occur?
- (iii) Describe, with the aid of a diagram, how you kept the yeast under anaerobic conditions during the investigation.
- (iv) Name the two substances produced by the yeast in the process of fermentation.
- (v) How did you know that fermentation had ceased? (24)

### Q2 Section A 2012

2. *Amoeba* is a tiny, one-celled organism.

This diagram shows the structure of a freshwater *Amoeba* as seen through a microscope.



(a) Name the parts labelled A, B, C and D.

A. \_\_\_\_\_ B. \_\_\_\_\_

C. \_\_\_\_\_ D. \_\_\_\_\_

(b) State:

one function of part A. \_\_\_\_\_

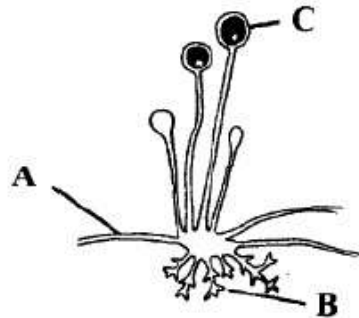
one function of part C. \_\_\_\_\_

(c) Give one difference between a plant cell and an amoeba.

\_\_\_\_\_

### Q13 Section C 2012

13. (a) All organisms may be classified (grouped) into five kingdoms.
- (i) Suggest **one** advantage of classifying organisms.
  - (ii) Name the kingdom to which bacteria belong.
  - (iii) Give **one** example of the economic importance of bacteria. (9)
- (b) (i) Draw a large labelled diagram of a typical bacterial cell.
- (ii) Bacteria may be classified by their shape. Name any **two** bacterial shapes.
  - (iii) Name the method by which bacteria reproduce.
  - (iv) What are *pathogenic* bacteria?
  - (v) State **two** factors affecting the growth of bacteria. (27)
- (c) The diagram shows part of the fungus *Rhizopus*.



- (i) Name the parts labelled A and B.
- (ii) Give **two** functions of structure B.
- (iii) Describe the role of part C in the reproduction of *Rhizopus*.
- (iv) What is meant by *saprophytic* nutrition?
- (v) Give **one** beneficial use of fungi. (24)

**Q7 Section B 2011**

7. (a) Draw a labelled diagram of a single, reproducing, yeast cell.

(b) Answer the following questions in relation to your investigation into the growth of leaf yeast.

(i) From what plant did you obtain the yeast?

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(ii) Name the nutrient medium on which you grew the yeast.

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(iii) Outline the steps you followed to get the yeast cells onto the nutrient medium.

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(iv) How long did it take for the yeast to become visible on the nutrient medium?

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(v) How did you recognise the yeast?

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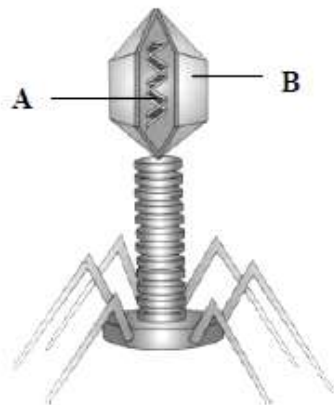
(vi) Describe one aseptic technique you carried out during this investigation.

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### Q15 Part (c) Section C

- (c) The diagram shows the structure of a type of virus.



- (i) Name the parts labelled A and B.
- (ii) State two harmful effects of viruses.
- (iii) What is meant by the term *immunity*?
- (iv) The skin is an important part of our immune system.  
Outline two ways in which the skin provides immunity.
- (v) To help the immune system, many people receive vaccinations during their lifetime.  
What is meant by the term *vaccination*?
- (vi) Antibiotics are usually not given to a person suffering from a viral infection.  
Suggest a reason for this.

### Q15 Part (c) Section C 2010

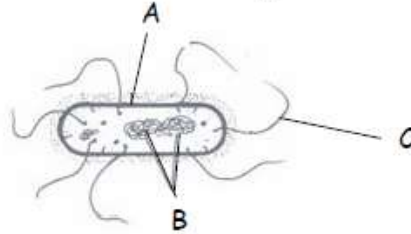
- (c) *Rhizopus* is a type of mould often found growing on stale bread.
- (i) Draw a diagram of *Rhizopus* and on it label a hypha, a sporangium and a sporangiophore.
  - (ii) Explain how *Rhizopus* gets its food.
  - (iii) What form of heterotrophic nutrition does *Rhizopus* have?
  - (iv) Outline the importance of this type of nutrition in nature.
  - (v) To what kingdom does *Rhizopus* belong?
  - (vi) Name one economically harmful member of this kingdom.
  - (vii) Mushrooms also belong to this kingdom. A restaurant owner decides to collect and cook wild mushrooms from a local forest.

Suggest one reason why this may not be a good idea.

## Q12 Section C 2009

12. (a) (i) Decomposition is essential for the addition of nutrients to the soil. Explain the underlined term.  
(ii) Name two groups of micro-organisms in the soil which are responsible for decomposition. (9)

- (b) The diagram shows the structure of a typical bacterial cell.



- (i) Name the bacterial cell parts A, B and C.  
(ii) What is the function of C?  
(iii) Name any **two** of the main bacterial types (shapes).  
(iv) By which method do bacterial cells reproduce?  
(v) Some bacteria are *anaerobic*. What does this mean?  
(vi) What are *pathogenic* bacteria?  
(vii) Give **two** example of the economic importance of bacteria. (27)
- (c) (i) Explain why it is difficult to classify viruses as living organisms.  
(ii) Give the **two** main chemical components of a virus.  
(iii) Briefly describe how viruses reproduce.  
(iv) Give **one** way in which viruses are beneficial and **one** way in which they are harmful. (24)

**Q7 Section B 2008**

7. It is important to use sterile apparatus when working with micro-organisms.

(a) (i) What is meant by sterile? \_\_\_\_\_

(ii) How may apparatus be sterilised? \_\_\_\_\_  
\_\_\_\_\_

(b) Answer the following questions about an investigation that you carried out to show the growth of leaf yeast.

(i) Name the container in which you grew the leaf yeast. \_\_\_\_\_  
\_\_\_\_\_

(ii) What was present in this container to provide food for the yeast?  
\_\_\_\_\_  
\_\_\_\_\_

(iii) Describe how you put leaf yeast into the container. \_\_\_\_\_  
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\_\_\_\_\_

(iv) How long did it take for the leaf yeast to appear? \_\_\_\_\_  
\_\_\_\_\_

(v) Describe the appearance of the leaf yeast in the container.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Q15 Part (c) Section C 2008**

- (c) Answer the following by reference to *Rhizopus*.
- (i) To which kingdom does *Rhizopus* belong?
  - (ii) Draw a diagram to show the structure of *Rhizopus* and label **three** parts.
  - (iii) Describe, using labelled diagrams, sexual reproduction in *Rhizopus*.
  - (iv) Give an example of a beneficial organism and of a harmful organism that belong to the same kingdom as *Rhizopus*.

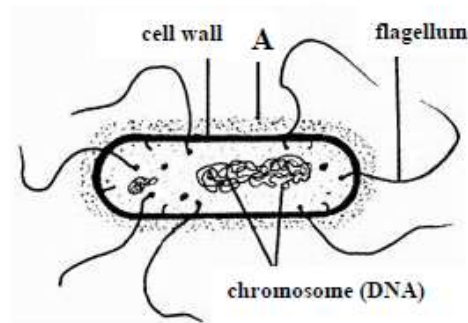
**Q12 Part (c) Section C 2007**

- (c) (i) Draw a labelled diagram of the apparatus in which you used yeast to produce alcohol.
- (ii) The water that you used in the apparatus was previously boiled and cooled. Why was this?
- (iii) In your investigation it was necessary to exclude air. How was this done?
- (iv) Describe briefly a test to show that alcohol had been produced. (27)



**Q13 Section C 2007**

13. (a) The diagram shows a typical bacterial cell.



- (i) Some bacteria have a layer outside the cell wall (labelled A in diagram). Name this layer and state its function
- (ii) Name a structure, other than A, which is not found in all bacteria.

(9)

(b) The table below shows ways in which bacteria obtain their food. Study the table and then answer the questions that follow.

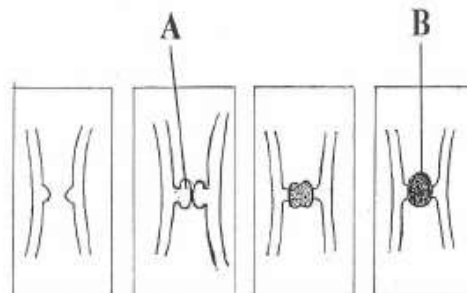
Autotrophic	Heterotrophic
Photosynthetic	Parasitic
Chemosynthetic	Saprophytic

- (i) Distinguish between autotrophic and heterotrophic nutrition.
- (ii) What is saprophytic nutrition?
- (iii) Why are saprophytic bacteria important in nature?
- (iv) Briefly explain chemosynthesis.
- (v) What term is used for the organism from which a parasite obtains its food?
- (vi) Give examples of two harmful bacteria.

(24)

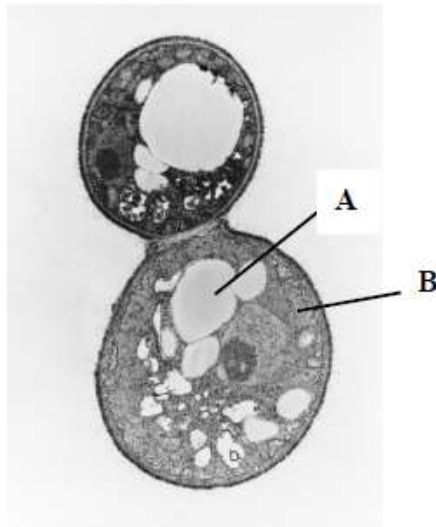
- (c) (i) Draw a labelled diagram to show the structure of *Rhizopus*.
- (ii) *Rhizopus* uses both sexual and asexual reproduction. Give a brief account of its asexual reproduction, using diagrams.
- (iii) The diagrams show stages of sexual reproduction of *Rhizopus*. Name the parts labelled A and B.
- (iv) What is the function of B?

(27)



**Q6 Section A 2006**

6. The diagram shows a yeast cell, which is undergoing asexual reproduction.



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- (a) Name A and B.

A ..... B .....

- (b) What type of asexual reproduction is shown in the diagram? .....

- (c) Which type of division, mitosis or meiosis, is involved in this form of reproduction? .....

- (d) If yeast cells are kept under anaerobic conditions, alcohol (ethanol) and another substance are produced.

(i) What are anaerobic conditions? .....

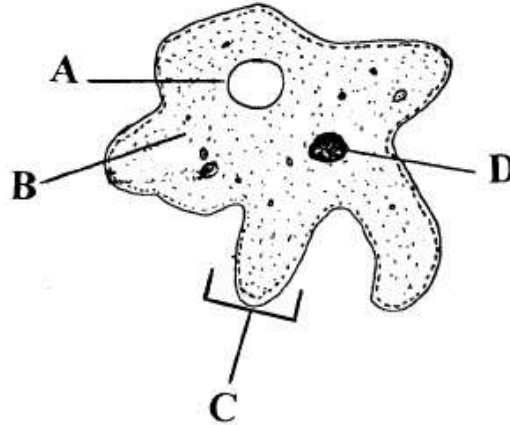
(ii) Name the other substance produced. ....

**Q13 Part (c) Section C 2006**

- (c) (i) Describe how you used yeast to produce alcohol (ethanol). Include a labelled diagram of the apparatus that you used.  
(ii) How did you show that alcohol had been produced?

**Q6 Section A 2005**

6. (a) The diagram shows the structure of *Amoeba*.



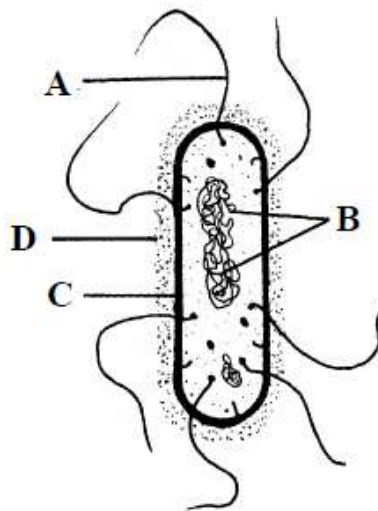
(i) Name A, B, C, D.

A ..... B .....

C ..... D .....

(ii) To which kingdom does *Amoeba* belong? .....

(b) The diagram shows the structure of a typical bacterium.



(i) Name A, B, C, D.

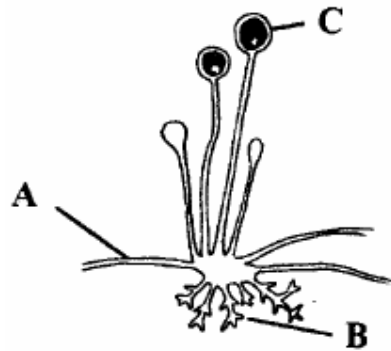
A ..... B .....

C ..... D .....

(ii) To which kingdom do bacteria belong? .....

**Q15 Part (c) Section C 2005**

- (c) The diagram shows part of the mycelium of *Rhizopus*.



- (i) Identify A, B, C.
- (ii) State a function of B.
- (iii) State a function of C.
- (iv) What term is used to describe the nutrition of *Rhizopus*? Explain the importance of this type of nutrition in nature.
- (v) To what kingdom does *Rhizopus* belong?
- (vi) Name another organism that you have studied in your biology course that belongs to the same kingdom as *Rhizopus*.