

**Maharashtra State Board**  
**Class IX**  
**Science and Technology Term I Paper – II**  
**Sample Paper 2 Solution**

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**1. (A)**

(1)

- (i) Yeast reproduces asexually by the **budding** method.
- (ii) **Program** is a set of commands given to a computer system.
- (iii) **Disaster management** is the action implemented through proper planning, organised activity and co-ordination.

**(B)**

- (i) False. Bandages, dressings, gloves and needles are part of biomedical waste.
- (ii) True.

**2.**

(1) *Saccharomyces*

Molasses are fermented with the help of the yeast *Saccharomyces*.

(2) Equation, Insert

To type equations in MS Word, the '**Equation**' option is selected in the '**Insert**' tab.

(3) Pteridophytes

Pteridophytes have naked embryos and vascular tissues.

(4) Phosphorus cycle

The phosphorus cycle is a sedimentary cycle.

(5) Fungi and Animalia

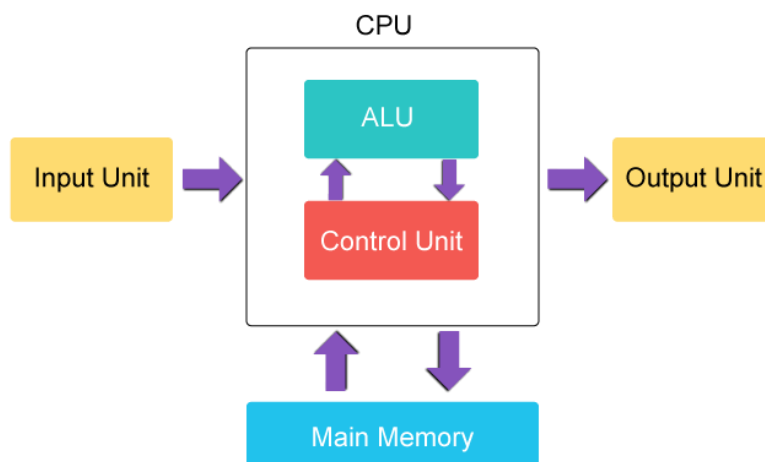
Organisms belonging to kingdoms Fungi and Animalia lack chlorophyll and thus cannot carry out photosynthesis. Hence, they show complete heterotrophic nutrition.

3.

(1) **Uses of *Lactobacilli*:** (Any four points)

- To obtain various milk products such as yoghurt, buttermilk, ghee, cheese and shrikhand through fermentation of milk
- For large-scale production of cider, cocoa and pickles of vegetables
- To treat abdominal discomfort along with some other microbes
- To prepare leavened fodder for domestic cattle (cows and buffaloes) by fermentation
- To manufacture wine and some types of breads

(2)



Processing unit: It is a system of devices which process the commands given to the computer so as to calculate the output desired by the user.

Important parts of CPU:

- Memory unit
- Control unit
- ALU (Arithmetic Logic Unit)

(3) **Monocotyledons:** Maize, sugarcane, coconut

**Dicotyledons:** Pea, neem, apple

(4)

- MS PowerPoint is a presentation tool which is designed to showcase or demonstrate processed data or information to an audience in an attractive manner.
- Information to be presented should be available with the user.
- Features of animations, transition effects, clip art and word art can be used to present the information.
- The presentation should be viewed in the 'Slideshow' mode.

(5) **Main processes of the carbon cycle:**

- Photosynthesis
- Respiration

(6) **Importance of solid waste management:**

- To prevent environmental pollution and to keep the surroundings clean
- To generate work and employment opportunities through energy and fertiliser production
- To reduce the strain on natural resources through treatment of solid waste
- To improve the health and quality of life and to maintain environmental balance

(7) **Differences between Pteridophytes and Phanerogams:** (Any 2 points)

<b>Pteridophytes</b>	<b>Phanerogams</b>
1. Do not produce seeds	1. Produce seeds
2. Have hidden reproductive organs	2. Have well-differentiated reproductive organs
3. Have primitive vascular tissues	3. Have advanced vascular tissues

**4.**

(1) **Precautions while taking antibiotics:**

- Take antibiotics only under the prescription of a doctor.
- Never purchase any antibiotic from medical stores without the prescription from a doctor.
- Never consume antibiotics on your own to treat common diseases like throat infection, common cold or influenza.
- Always continue and complete the course of the antibiotics even if you feel well before completing the prescribed course.
- Never suggest antibiotics which were useful to you to others.

(2) **Uses and drawbacks of composting:**

- The use of compost improves soil fertility as it provides nutrients to the soil.
- Dry composting toilets are a hygienic and cost-effective solution for disposing human excreta.
- A major drawback of composting is that most people do not segregate wastes in their homes, which hampers the process of composting.

(3) Memory is the place where data is stored after being obtained from the input or from the generated solution by the computer.

Two types of computer memory:

1. Internal memory: RAM and ROM
2. External memory

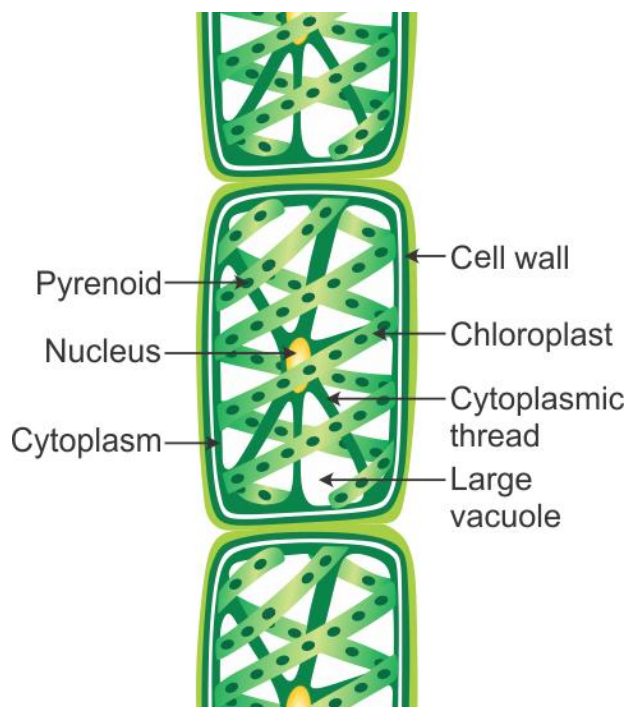
**RAM** (Random Access Memory):

- RAM is made up of electronic components.
- Memory stored in RAM is not permanent.

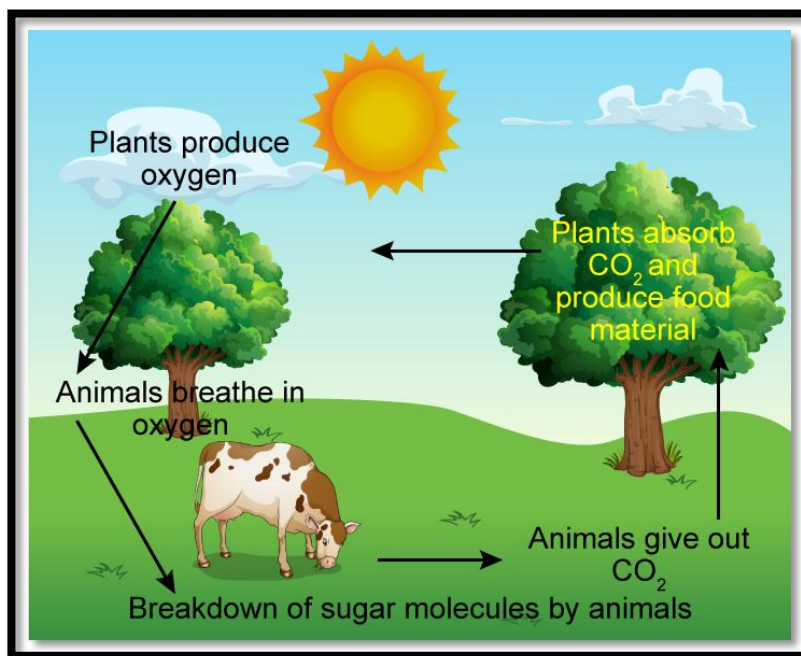
**ROM** (Read Only Memory):

- Memory stored in ROM is 'read only' memory, i.e. it can only be read and cannot be modified.
- ROM has a permanent storage of memory, as obtained from the manufacturer, and it cannot be modified.

(4) **Structure of *Spirogyra***



(5) **Oxygen cycle**



(6) **Precautions:**

- Data should be in the tabular form.
- Different types of data should be entered in different cells.
- Data should be entered neatly.
- Unnecessary spaces and special characters should not be used.
- While performing 'Drag and fill' of data, the 'Smart tag' can be used to fill any data in the required manner.
- Entered data can be formatted in different ways.
- Different types of calculations can be easily and accurately performed in a very short time using different formulae.
- While using a formula, the '=' sign should be typed first.
- Using space should be strictly avoided while typing any formula.

(7) **Characteristic features of Division Bryophyta:** (Any 6 points)

- Small, multicellular, green-coloured land plants.
- Lack true roots, stem and leaves.
- Plant body is flat, ribbon-like long.
- Do not bear flowers.
- Possess stem-like or leaf-like parts and root-like rhizoids for support.
- A true vascular system is absent.
- Reproduce by spore formation.

5.

(1) **Good habits in solid waste management:**

- Do not throw chocolate, biscuit, ice cream or other fast-food wrappers on the road or in open spaces. Throw them in a dust bin. If you cannot find a dustbin, then keep the wrappers with you and put them in specific containers later on.
- One should avoid using plastic bags. Instead, bags made of cloth and paper can be used.
- Avoid the use of tissue paper. Instead, use your own cloth napkin.
- Make use of washable cups, mugs and plates instead of disposables.
- Social awareness programmes should be conducted in schools and colleges to stress the importance of solid waste management.

(2)

(a) Atmospheric nitrogen gas is converted to the usable nitrogenous form by two main processes:

- Biological process: Atmospheric inert nitrogen gas is converted to the usable nitrogenous form with the help of free living, nitrogen-fixing bacteria found in the roots of legumes.
- Physical process: During lightning, the high temperature and pressure created in the air convert nitrogen to oxides of nitrogen.

(b) **Nitrogen cycle in nature**

