

Scientific English Exam

Model Answer

Case Study – Answers (3 pts)

1. Give a suitable title for the case study.

(Any clear, relevant scientific title is acceptable.)

2. Type of Microorganism Responsible: **Virus**

⇒ **Justification:** The symptoms—coughing, fever, breathing difficulties, fatigue, chest discomfort—and the rapid spread among people in a crowded indoor environment suggest a viral respiratory pathogen, as viruses are highly transmissible through aerosols and droplets in enclosed spaces.

3. Primary Route of Transmission: **Inhalation (Airborne) transmission.**

⇒ **Explanation:** Most affected individuals spent long periods indoors, and the outbreak occurred in a crowded, enclosed venue. Air sampling and ventilation inspection indicate the microorganism spreads via inhalation of contaminated air.

Fill in the Blanks (3 pts)

1. The **mitochondria** is the organelle responsible for producing energy in the form of ATP through cellular respiration.
2. A **tissue** is a group of similar cells that work together to perform a specific function in an organism.
3. Microorganisms are commonly cultured in a **petri dish** under controlled laboratory conditions.
4. The **nucleus** contains the genetic material of the cell and controls cellular activities.
5. **Sterilization** is the process used to eliminate all forms of microbial life from laboratory equipment.
6. **Electron microscopy** allows scientists to observe cellular structures at very high resolution, beyond the limits of light microscopy.

Writing Scientific Definitions (4 pts)

Part A: Identify the Correct Scientific Definition

1. **Enzyme:** **B. Enzyme is a protein that catalyzes biochemical reactions.**
2. **Antibody:** **B. Antibody is a protein used by the immune system to recognize and neutralize pathogens.**

Part B: Spot the Mistake

- Statement: "Chromosome is something in the cell that contains DNA and is important."
- **Mistake:** Vague and informal. "Something" and "important" are not precise scientific terms.

- **The Scientific Definition Formula:**

⇒ **Term + is + a general category + function**

True/False Statements (4 pts)

1. **False.** Correct version: Microorganisms are tiny living organisms that are too small to be seen with the naked eye and are found in diverse environments, including soil, water, air, and inside other living organisms.
2. **True.**
3. **True.**
4. **True.**

Mini Lab Report (5 pts)

Title:

Respiratory Pathogen Detection Following an Indoor Exhibition Outbreak

⇒ (Any clear, relevant scientific title is acceptable.)

Aim:

To identify the microorganism responsible for the respiratory illness outbreak and determine its mode of transmission.

Method:

- Collect air samples and swabs from the exhibition venue.
- Inspect ventilation and air-conditioning systems.
- Perform laboratory tests to identify the pathogen.
- Record and analyze symptoms among affected individuals.

Result:

- A pathogenic microorganism capable of causing respiratory illness was detected.
- Initial hospital reports indicated 15 cases in the first two days, with additional cases reported later.
- Evidence suggested that prolonged exposure in enclosed areas facilitated transmission.

Conclusion:

The outbreak was caused by a pathogenic respiratory microorganism, likely a virus, transmitted primarily through airborne particles. Temporary closure and public health measures effectively limited further spread. Preventive strategies should focus on improving ventilation and minimizing crowding in indoor spaces.