SIMULAZIONE DI COLLOQUIO IN LINGUA INGLESE

Di seguito proponiamo una **simulazione di colloquio d'esame** composta da una serie di **domande** accompagnate da **alcuni spunti di risposta**. Durante l'esposizione, arricchisci sempre i suggerimenti forniti con **argomentazioni** e **riferimenti precisi ai concetti studiati**. Le indicazioni che precedono i quesiti segnalano la principale operazione (contestualizzazione, analisi e interpretazione, confronto) oppure l'ambito di riferimento (Educazione civica, riflessione personale) che sei invitata/o a sviluppare nel formulare la risposta.

1. Automation

"Define automation and describe its main parts. Give some examples of real equipment you have used in your school years. Discuss the positive and negative effects that automation has had on workers in the modern world."

CONTEXTUALISATION

Define automation as a way of controlling an industrial process with minimal or no human involvement. Describe the main components: controller, sensors and actuators. Among them find some examples of real equipment you know and discuss performances and applications. Distinguish between positive (robots that perform dangerous or highly repetitive tasks) and negative effects (loss of employment) and discuss how human workers can still be crucial.

2. Electrical energy

"Consider the different types of energy sources. Compare fossil fuel and nuclear power stations with renewable energy plants. "

COMPARISON

Compare two or more different power plants that use renewable and non-renewable sources. Highlight relevant differences regarding:

- method of energy production;
- reliability of the power source related to the variability of energy needs;
- pollution and impact on climate change;
- costs of installation and general safety risks ;

Highlight some innovative solutions that can reduce power consumption increasing the efficiency of energy management. (power distribution grid)

3. Electronic devices and impact on human life

Starting from the invention of the transistor in the second half of the twentieth century, electronic systems have had a very significant impact on the development of humankind and on everyday life.

Analyse one of the following devices, focusing on its applications and the innovations that followed:
a) the transistor
b) integrated circuits
c) the microprocessor or microcontroller
d) Robots

ANALYSIS AND INTERPRETATION

a) Discuss how a transistor works and explain how it became the foundation of the most important innovations of the twentieth century (such as radio and TV broadcasting, telecommunications, etc.).

b) Explain how integrated circuits are manufactured and how miniaturisation led to the development of affordable components such as CPUs and memory devices.

c) Analyse what a microprocessor or a microcontroller is and what tasks it can easily perform. Discuss its impact on education and everyday life (at first in smartphones and personal computers, but now almost everywhere).

d) Explain how a robot works. Highlight the different tasks that robots can perform depending on their type or structure (humanoid, industrial, collaborative robots – cobots – AGVs, etc.).

4. AI in Education and Engineering

In the last few years, AI has spread into almost every aspect of life. How could the 2030 Sustainable Development Goals be affected by the massive use of AI technology?

PERSONAL REFLECTION

Start by describing your own use of AI and how it helps you achieve your educational goals. Describe the services you are familiar with and explain whether and how they have changed your study habits. Analyse the pros and cons of AI tools, highlighting how they can promote faster learning but also facilitate cheating during tests. Conclude with your personal opinion on how AI should be regulated by governments.

CIVIC EDUCATION

Focus on some of the goals you have studied in your civic education class. Here are some examples for discussion:

Goal No. 4 – Quality Education: AI can act as a “super teacher” available to everyone, but some experts argue that AI services may soon no longer be free.

Goal No. 7 – Affordable and Clean Energy: AI requires a huge amount of energy. It is estimated that global electricity consumption could significantly increase due to AI. On the

other hand, some experts suggest that AI systems can develop innovative ways to manage energy more efficiently.

Goal No. 8 – Decent Work and Economic Growth: Many workers could be replaced by AI programs, potentially leading to high unemployment. However, AI companies argue that previous industrial revolutions mainly transformed the job market by creating new types of jobs rather than eliminating them completely.