1. Identify the ethical issue associated with the use of artificial intelligence.

(1)

A Acceptable use policies **B** Algorithmic bias **C** Logic errors **D** Unpatched software

2. What are some challenges associated with ensuring accountability in AI systems? (1)

A) Lack of transparency in how AI systems make decisions
B) Difficulty in identifying who is responsible for the actions of AI systems
C) Limited ability to audit or monitor the decisions and actions of AI systems
D) All of the above

3. What is the ethical issue related to the collection and use of data from driverless cars? (1)

A) Privacy and the potential for misuse of personal data
B The accuracy and reliability of the data collected by the cars
C) The ownership and control of the data collected by the cars
D) The ethical implications of using data collected from driverless cars to make decisions that could impact people's lives

4. Identify the ethical issue related to the use of robots instead of humans in the workplace?

A) The potential for increased efficiency and productivity
B) The impact on human employment and job security
C) The safety risks associated with working alongside robots
D) The potential for robots to develop consciousness and autonomy

5. Identify is the ethical issue related to the use of robots in caring for the elderly and disabled? (1)

a) The potential for increased efficiency
b) The impact on the quality of care and human connection
c) The safety risks associated with using robots for care
d) The potential for decreased costs

6. Identify the ethical issue related to the use of robots in the military? (1)
a) The potential for increased safety for military personnel
b) The potential for increased efficiency and effectiveness in combat
c) The legal implications of delegating life and death decisions to machines
d) The potential for robots to become uncontrollable and turn against humans

7. Algorithmic bias could be caused by using inaccurate data to train a machine learning algorithm.

State **two other** ways that the data used to train an algorithm could cause algorithmic bias. (2)

8. Describe the ethical concerns over the use of artificial intelligence in hiring people for a job? (2)

9. Describe how data is used in machine learning? (2)

10. What are some of the concerns over the use of robots? (2)

ANSWERS

1. Algorithmic bias - when algorithms unfairly disadvantage certain groups due to prejudiced training data or design choices.

2. D – all of the above. Ensuring accountability in AI is tricky because it's often hard to understand how complex algorithms reach their decisions, making it difficult to pinpoint who's responsible for biased or harmful outcomes.

3. D. Although A is also a possibility.

4. B – the impact on human employment and job security.
   Here is a summary of the ethical issues surround the use of robots in the workplace:
   Job displacement: A major concern is widespread job losses as robots become increasingly capable of performing tasks currently done by humans. This can lead to unemployment, economic hardship, and social unrest. **Skill gap and retraining**: The shift towards automation might create a skill gap, leaving many workers unprepared for new job demands. Investment in retraining programs would be crucial. **Safety concerns**: Ensuring the safe interaction between robots and humans in the workplace is essential. Robust safety protocols and clear guidelines for human-robot collaboration are needed.
   The psychological impact of working with robots: The long-term effects of working alongside **humanoid** robots on human well-being, job satisfaction, and potential feelings of isolation need to be considered. **Bias and discrimination in automation**: Algorithms used to control robots might be biased, leading to discriminatory practices in hiring and task allocation.

5. B – **the impact on the quality of care and human connection**. Robots may not be able to provide the same level of social interaction, emotional support, and empathy as human caregivers. Over-reliance on robots could lead to feelings of isolation and a decline in well-being for vulnerable individuals. There are **also privacy concerns** around sensitive personal data, **affordability and inequality and issues surrounding safety** and how robot caregivers would respond in emergency situations.

6. C – the legal implications of delegating life and death decisions to machines.
   There are MANY ethical issues surrounding the use of LAWs (Lethal Autonomous Weapons). Here is a summary:
   Loss of human life and proportionality: The use of lethal autonomous weapons (LAWs) raises concerns about the potential for unintended casualties and the dehumanization of warfare. Who is ultimately responsible for decisions made by autonomous robots resulting in human deaths?
   Accountability and responsibility: In case of war crimes or rule violations committed by robots, determining accountability becomes complex. Clear guidelines are needed on who is responsible for the actions of autonomous weapons systems.
   The risk of escalation: Widespread use of military robots by one nation could lead to an arms race and potentially lower the threshold for armed conflict.
   Hacking and misuse: The risk of autonomous weapons systems being hacked or falling into the wrong hands raises significant security concerns. Robust cybersecurity measures are essential.
   Psychological impact on soldiers: Overreliance on robots could distance soldiers from the realities of war and potentially lead to psychological problems.
   The objectification of the battlefield: Excessive reliance on robots could lead to a view of war as a video game, potentially making it easier to engage in conflict without considering the human costs.

7. Causes of algorithmic bias: **inaccurate or biased training data**, **unequal data collection**. For instance, facial recognition algorithms trained primarily on images of one race might perform poorly when recognising faces of other races. U**nconscious bias by programmers. Limited**

oversight by humans - If humans don't properly oversee and audit algorithmic decision-making, biases might go unnoticed and unaddressed.

8. Here are some potential issues with using AI when hiring people for jobs:

   Bias and Discrimination: AI algorithms used for hiring can perpetuate existing biases present in the data they are trained on. This can lead to discrimination against certain demographics based on race, gender, age, or other factors. For example, an AI trained on CVs that are predominantly from men might potentially disadvantage women.
   Lack of Transparency: It's difficult to understand how AI makes decisions. This lack of transparency makes it hard to identify and address potential biases within the algorithm itself. Candidates may be left wondering why they weren't selected for a role, hindering the fairness of the hiring process.
   Privacy Concerns: AI tools might collect a vast amount of data from candidates, including CVs, social media profiles, or even information gleaned from video interviews. Concerns arise around how this data is stored, secured, and used, and whether candidates have control over their information.
   Focus on measurable data over soft skills: AI algorithms often rely heavily on keywords, skills listed on CV, or things that can be measured such as exam grades. This can undervalue important soft skills like communication, teamwork, or problem-solving that are crucial for job success but might be harder to measure.
   Over-reliance on AI and Ignoring Human Judgment: Solely relying on AI for hiring decisions can overlook a candidate's potential and fit for the company culture. Human judgment and intuition are still essential parts of the hiring process.

9. Machine learning algorithms are trained on massive datasets, where they learn patterns and relationships between the data points. This "training data" allows the algorithm to make predictions or classifications on new, unseen data.

10. Some of the concerns over the use of robots has already been covered.