**INTEGRATED SCIENCE.**

1. **Integrated science is important in daily life as it helps us understand phenomena by combining knowledge from various scientific disciplines. For example, understanding the principles of physics, chemistry, and biology helps in cooking food where heat transfer (physics) affects chemical reactions (chemistry) and biological processes (nutrition).**
2. **Grace can separate iron and sulfur by using a magnet to attract the iron filings, leaving the sulfur behind. This method works because iron is magnetic while sulfur is not. However, this method wouldn’t work for separating a mixture of salt and sugar because both substances are soluble in water and cannot be separated by magnetic attraction.**
3. **(a) Sample D is acidic (pH 5.0).**
   1. **Sample F is basic (pH 8.0).**
   2. **Sample E is neutral (pH 7.0).**
4. **Fertilization in human beings occurs when a sperm cell fertilizes an egg cell, typically in the fallopian tube of the female reproductive system.**
5. **C: Uterine wall - provides a site for the embryo to attach and receive nutrients.**

**D: Embryo - develops into a fetus during pregnancy.**

1. **Skin passes out sweat (containing metabolic wastes like urea and salts) while the kidney excretes urine (containing metabolic wastes, excess ions, and water).**
2. **Advantages of kidney transplant over dialysis include:**
   1. **Improved quality of life.**
   2. **No need for regular dialysis sessions.**
   3. **Potential for a longer lifespan.**
3. **(a) simple electric circuit cells with arranged in series**
   1. **a simple electric circuit with cells arranged in parallel**
4. **Walking in an open field during rain is dangerous due to the risk of being struck by lightning, as open spaces increase the likelihood of being a target for lightning strikes.**
5. **Integrated science equips individuals with problem-solving skills applicable in various situations. For instance, understanding ecological principles helps in addressing environmental issues like pollution or resource management in localities.**
6. **(a) The area of the plastic bottle is 3.0 cm².**
   * 1. **To determine the area of the plastic bottle, we need more information such as the shape of the bottle (e.g., cylindrical, rectangular). Without this information, we cannot accurately determine the area.**
7. **Conical flasks,**

**Mixing and Dissolving: Conical flasks are often used for mixing solutions and dissolving solutes in solvents due to their conical shape, which allows for efficient stirring and swirling without excessive splashing.**

1. **A: Eyepiece - magnifies the image of the specimen.**

**F: Objective lens - further magnifies the image of the specimen.**

1. **Simple distillation; is a process used to separate components of a mixture based on differences in their boiling points. It’s commonly employed to purify liquids, especially when the components have significantly different boiling points.**
2. **Four sources of electric energy are solar power, hydroelectric power, wind power, and fossil fuels (coal, oil, natural gas).**
3. **When a south pole of a magnet is brought near the north pole of another magnet, they attract each other due to magnetic forces.**
4. **(a) Ovulation phase: Release of a mature egg from the ovary into the fallopian tube.**

**(b) Luteal phase: The ruptured follicle transforms into a structure called the corpus luteum, which secretes progesterone to prepare the uterus for potential pregnancy.**

1. **The skin is composed of two main layers: the epidermis (outer layer) and the dermis (inner layer).**
2. **Measures to observe while dealing with static charges include grounding oneself before touching sensitive electronic equipment and using antistatic materials or**

**equipment to prevent static buildup.**

1. **Mortar and pestle.**

**Grinding: It is commonly used to grind solid materials into finer powders or pastes. For example, in chemistry laboratories, substances such as chemicals or minerals may be ground using a mortar and pestle to achieve a finer texture for analysis or experimentation.**