Condensation Questions with Solutions

Q1. Condensation is a/an-

a.) exothermic process
b.) endothermic process
c.) ectothermic process
d.) None of the above

Correct Answer– (a.) exothermic process

Q2. Clouds in the atmosphere form because-

a.) The water vapour freezes
b.) The water vapour becomes cold and condenses into a liquid
c.) The water vapour becomes warm and condenses into liquid
d.) The water vapour evaporates

Correct Answer– (b.) The water vapour becomes cold and condenses into a liquid

Q3. Condensation is the opposite of-

a.) Precipitation
b.) Evaporation
c.) Sublimation
d.) All of the above

Correct Answer– (b.) Evaporation

Q4. When does condensation occur?

a.) When solids change to liquid
b.) When liquid water changes to water vapour
c.) When water vapour changes to liquid water
d.) None of the above

Correct Answer– (c.) When water vapour changes to liquid water

Q5. Which will most likely form during the condensation process?

a.) rain

b.) hail
c.) clouds
d.) All of the above

Correct Answer– (c.) clouds

Q6. How does condensation happen?

Answer. Condensation occurs in one of two ways: the air is either cooled to its dew point or it becomes so saturated with water vapour that it cannot hold any more water.

Q7. Define Dew point.

Answer. The temperature at which air can no longer hold any more water Below this temperature the water comes out of the air in the form of drops. The temperature at which condensation occurs is known as the dew point. (Dew is simply water condensed in the atmosphere.) Air temperatures can naturally reach or fall below the dew point, as they frequently do at night. As a result, lawns, cars, and houses are frequently covered in water droplets in the morning.

Q8. What is the process by which a gas condenses?

Answer. When gas is sufficiently cooled or, in many cases, when the pressure on the gas is sufficiently increased, the forces of attraction between molecules prevent them from moving apart, and the gas condenses to a liquid or a solid.

Q9. Is energy released or absorbed during condensation?

Answer. The energy is released during the process of condensation and is referred to as heat of condensation. The heat of condensation of water is approximately 2260 kJ/kg, or 40.8 kJ/mol. The heat of condensation is numerically equal to the heat of vaporisation but has an opposite sign.

Q10. Explain how condensation happens?

Answer. Air contains water vapour.
When the hot air comes in contact with the cold surface, heat is transferred from the hot air to the surface. The loss of heat in the surrounding air causes the water vapour to lose energy. Once energy is lost, the water vapour condenses into liquid on the glass.

Q11. Give some everyday examples of condensation.

Answer. Some everyday examples of condensation are as follows-

- Morning Dew
- Droplets on chilled can/glass

- Clouds in the Sky
- Rain Falling Down
- Fog in the Air
- Visible Breath in Cold Conditions
- Fogging a Mirror
- Steamy Bathroom Mirror

Q12. Discuss the ill effects of condensation.

Answer. Condensation within buildings can be a problem, and it is frequently caused by a combination of heating, ventilation, and insulation. Mould, fungi, and mildew, as well as humidity, can cause allergic reactions, skin irritations, and respiratory problems, including asthma. These can be especially harmful to the most vulnerable members of the population, such as infants and the elderly.

Q13. Explain the process of Condensation.

Answer. Water condenses when it changes its phase from a gaseous state to a liquid or crystal state. Any gas can condense at high pressure and low temperature. Theoretically, condensation can occur at any temperature as long as the pressure of the gas in its liquid state is less than the pressure of the condensing gas. Since the heat energy is removed during the condensation process, the molecules in the matter slow down, causing a change within the three states of matter.

Q14. Is condensation and condensation reaction the same?

Answer. A condensation reaction is the combination of two molecules to form a single molecule, usually with the loss of a small molecule such as water, whereas condensation is the process through which the physical state of matter changes from the gaseous phase into the liquid phase.

Q15. Explain the role of condensation in the water cycle.

Answer.

- Condensation is important to the water cycle as it is responsible for the formation of clouds.
- Water vapour present in the air is responsible for the formation of clouds which ultimately comes down in the form of rain.
- This phase change of water between solid, liquid and gas is because of the movement of water molecules.
- In vapour form, water molecules are arranged randomly as compared to the liquid state.
- As condensation happens, water molecules become more organized and as a result, heat is released into the atmosphere leading to a change of phase from the vapour state to the liquid state.
- This generally occurs in the atmosphere when warm air rises up and cools down.

For condensation to take place, it is very important that the atmosphere is fully saturated (to reach maximum vapour pressure). Usually, condensation takes place around dust particles or smoke or microscopic bacteria. It plays a very significant role in the water cycle and thus helps in maintaining the water balance in the environment.

Practise Questions on Condensation

Q1. The condensation process is very common in-

(i) Boilers
(ii) Condensers
(iii) Evaporators

Identify the correct statements
a.) i and ii
b.) ii and iii
c.) i, ii and iii
d.) i and iii

Correct Answer– (c.) i, ii and iii

Q2. Condensation refers to a change from the

a.) Solid to a liquid phase
b.) Vapour to a liquid phase
c.) Liquid to a solid phase
d.) Liquid to a vapour phase

Correct Answer– (b.) Vapour to a liquid phase

Q3. Fill in the blank.
Another name for a condensation reaction is ___.

Answer. Another name for a condensation reaction is the dehydration reaction.
In the presence of a catalyst or under acidic or basic conditions, this type of reaction produces an addition product and water. A hydrolysis reaction is the opposite of a condensation reaction.

Q4. Explain condensation.

Answer. When the water vapour cools enough, the attractions between the molecules bring them together. This causes the water vapour to change state and become tiny drops of liquid water. The process of changing from a gas to a liquid is called condensation.

Condensation is the change of water from its gaseous form (water vapour) into liquid water. Condensation generally occurs in the atmosphere when warm air rises, cools and loses its capacity to hold water vapour. As a result, excess water vapour condenses to form cloud droplets.
Cause of condensation:
When warm, moist air comes into contact with cooler surfaces, the moisture condenses. That's because the cooler air surrounding cooler surfaces cant hold as much moisture as warmer air. Condensation usually appears in cold weather on the glass and/or frames of windows and sliding glass doors.

Q5. What are the factors controlling condensation? Explain how condensation forms clouds?

Answer. The factors controlling condensation are as follows:

- The water vapour content of the air
- warm moist air
- Cool surface temperatures below the dew point.

Water on the earth's surface evaporates due to sunlight and rises into the atmosphere. Water vapour in the air condenses to form tiny droplets of water when it reaches a certain height. These water droplets combine to form clouds, which float in the air.