



**Department of Mechanical Engineering**

**CE8005 AIR POLLUTION AND CONTROL ENGINEERING**

**Unit III - CONTROL OF PARTICULATE CONTAMINANTS MCQ Bank**

1. Which of the following is used in ceramic industries?

- a) Electrostatic precipitator
- b) Dynamic precipitator**
- c) Spray tower
- d) Wet cyclonic scrubber

Answer: b

Explanation: Dynamic precipitator is used in ceramics, woodworking industries. It uses centrifugal force to remove gaseous matter.

2. Wet scrubbers are classified into \_\_\_\_ types.

- a) 2
- b) 3**
- c) 5
- d) 6

Answer: b

Explanation: Wet scrubbers are used to remove air pollutants and are classified into Spray towers, Wet cyclonic scrubber and Venturi scrubber.

3. The centrifugal collectors are classified into how many types?

- a) 3
- b) 4
- c) 5
- d) 2**

Answer: d

Explanation: The Centrifugal collectors are classified into the Cyclone collector and Dynamic precipitator.

4. Which of the following air pollution control device has maximum efficiency?

- a) Electrostatic precipitator**
- b) Dynamic precipitator
- c) Spray tower

d) Wet cyclonic scrubber

Answer: a

Explanation: Electrostatic precipitator has the maximum efficiency among the rest with a value of 99%.

5. Which of the following fluid is used in web scrubbers?

a) **Lime**

b)  $MgSO_4$

c) NaCl

d)  $K_2Cr_2O_7$

Answer: a

Explanation: Apart from lime,  $K_2CO_3$ , a slurry of MnO and MgO and water can be used in Web scrubber.

6. Which of the following is incorrect regarding the fabric filter?

a) They can remove very small particle

b) They are liable to chemical attack

c) **They have low efficiency in comparison to venturi scrubber**

d) They can handle large volume of gas at relatively high speed

View Answer

Answer: c

7. Which of the following removes both gaseous and particulate contaminants?

a) **Venturi scrubber**

b) Gravitational settling chamber

c) Dynamic precipitator

d) Wet scrubber

Answer: a

8. Identify the correct statement regarding the Electrostatic precipitator.

a) Minimum particle size removal is  $<0.5\mu m$

b) **They can be operated at high temperature**

c) It has a low maintenance cost

d) It does not cause any freezing problem

Answer: b

9. When environmental Lapse Rate (ELR) is less is than Adiabatic Lapse Rate (ALR), then which of the following occurs?

a) **Sub adiabatic lapse rate**

b) Super adiabatic lapse rate

c) Neutral lapse rate

d) Adiabatic lapse rate

Answer: a

Explanation: When the temperature increases with an increase in altitude, Sub adiabatic lapse rate occur and there will be stable environment.

10. \_\_\_\_\_ occurs when atmospheric temperature increases with height.

- a) Negative lapse rate
- b) Super adiabatic lapse rate
- c) Neutral lapse rate

**d) Positive lapse rate**

Answer: d

Explanation: Under negative lapse rate, the colder air is below the warmer air. It can be occurred near the earth's surface.

11. When environmental Lapse Rate (ELR) is equal to the Adiabatic Lapse Rate (ALR), then which of the following occurs?

- a) Sub adiabatic lapse rate
- b) Super adiabatic lapse rate

**c) Neutral lapse rate**

d) Adiabatic lapse rate

Answer: c

Explanation: When the temperature is constant with height, then neutral lapse rate occurs.

12. The wet adiabatic rate is greater than the dry adiabatic rate.

a) True

**b) False**

Answer: b

13. When Environmental Lapse Rate (ELR) is greater than Adiabatic Lapse Rate (ALR), then which of the following occurs?

a) Sub adiabatic lapse rate

**b) Super adiabatic lapse rate**

c) Neutral lapse rate

d) Adiabatic lapse rate

Answer: b

14 . Which of the following is the absorption unit?

a) Cyclone collector

**b) Plate tower**

c) Gravitation settling chamber

d) Dynamic precipitator

Answer: b

15. Which of the following catalyst is used for removing hydrocarbon from gaseous pollutant in combustion unit?

- a) Platinum
- b) Activated alumina**
- c) Vanadium
- d) Potassium permanganate

Answer: b

Explanation: Activated alumina is used as a catalyst for removing gaseous pollutant called hydrocarbons from the air. The concentration of hydrocarbon emitted from automobiles is 300-1000 mg/l.

16. Which of the following is not a part of adsorption unit?

- a) Packed towers
- b) Multiple fixed bed
- c) Fluidized bed
- d) Moving bed

Answer: a

Explanation: Packed tower is a part of the absorption unit, whereas multiple fixed bed, fluidized bed and moving bed are the examples of absorbers.

17. Which of the following is a bulk phenomena?

- a) Physical adsorption
- b) Chemical adsorption
- c) Absorption**
- d) Sorption

Answer: c

Explanation: Adsorption is a bulk phenomena, whereas absorption is a surface phenomena.

18. Which of the following is not an adsorbent?

- a) Molecular sieves
- b) Activated carbon
- c) Activated alumina
- d) Water**

Answer: d

19. NDUV monitors use a reference gas to analyse other gases.

- a) True
- b) False**

Answer: b

20. NDUV analysis is also known as the differential absorption.

- a) **True**
- b) False

Answer: a

Explanation: NDUV method uses a reference wavelength which has less absorption capabilities to find out variations in absorption with respect to this reference wavelength in different media.

21. Fluorescence analysers are used to analyse which of the following gases?

- a) Nitrogen dioxide
- b) **Sulphur dioxide**
- c) Sulphur trioxide
- d) Nitrous oxide

Answer: b

Explanation: Fluorescence occurs when a molecule is excited by light energy of specific wavelength and emits light energy of another wavelength.

22. Electroanalytical monitors rely on which of the following methods?

- a) Polarography and amperometric analysis
- b) Polarography and electrocatalysis
- c) Polarography, electrocatalysis and conductivity
- d) **All of the mentioned**

Answer: d

Explanation: Electroanalytical instruments rely on polarography, conductivity, electrocatalysis and amperometric analysis.

23. Which of the following analyser is used for oxygen analysis?

- a) **Electrocatalytic**
- b) Polarographic
- c) Conductive
- d) Amperometric

Answer: a

Explanation: Electrocatalytic analysers are used for oxygen monitoring.

24. Flame photometric analysers are specific to sulphur compounds.

- a) **True**
- b) False

Answer: a

25. Airshed modelling takes into account the effects of only stationary sources and not the mobile sources of pollution.

a) True

**b) False**

Answer: b

26. What is the primary standard level for carbon monoxide for assuring air quality?

a) 10ppm

b) 90ppm

c) 1ppm

**d) 9ppm**

Answer: d