Question Bank

SUBJECT: Environmental Engineering (Theory)
VI Semester B. Tech. Chemical Engineering
COURSE CODE: BTCHE 602T (BCHE)

Q 1: The most precise and reliable titrimetric procedure for D.O. analysis.
A. Winkler (iodometric) test
B. Warden method
C. Gravimetric test
D. Clark's method

Q 2: Suspended solids are measured by which of the following?
A. Turbidity rod
B. Gravimetric test
C. Chromatography
D. Jackson's turbidity meter

Q 3: Identify the correct relation between the following?
A. Dissolved solid = Total solid + Suspended solid
B. Dissolved solid = Total solid – Suspended solid
C. Total solid = Dissolved solid / Suspended solid
D. Dissolved solid = Suspended solid – Total solid

Q 4: What is the full form of NTU in context with turbidity?
A. Number of transfer unit
B. Neurological turbidity unit
C. Nephelometric turbidity unit
D. Network terminal unit

Q 5: Chlorides are estimated by titration with a standard silver nitrate solution by using _____ as an indicator.
A. Potassium manganate
B. Potassium chloride
C. Potassium chromate
D. Potassium dichromate

Q 6: Which of the following statement is wrong regarding permanent hardness?
A. It is also called carbonate hardness
B. It is due to the presence of sulfates, chlorides and nitrates of calcium and magnesium
C. It cannot be removed by boiling
D. It requires special methods of water softening to get removed

Q 7: One degree of hardness is equivalent to ___ ppm.
A. 2
B. 1
C. 10
D. 100

Q 8: What is the indicator used in EDTA method?
A. Potassium chromate
B. Potassium dichromate
C. Potassium chloride
D. Erio chrome, black T

Q 9: Orthotolidine test is used for determination of
A. Dissolved oxygen
B. Residual chlorine
C. Biochemical oxygen demand
D. Dose of coagulant

Q 10: Standard BOD is measured at
A. 20°C - 1day
B. 25°C- 3day
C. 20°C - 5day
D. 30°C- 5day

Q 11: The correct relation between theoretical oxygen demand (TOD), Biochemical oxygen demand (BOD) and Chemical oxygen demand (COD) is given by
A. TOD>BOD>COD
B. TOD>COD>BOD
C. BOD>COD>TOD
D. COD>BOD>TOD

Q 12: Select the correct statement.
A. 5 day BOD is the ultimate BOD.
B. 5 day BOD is greater than 4 day BOD keeping other conditions same.
C. 5 day BOD is less than 4 day BOD keeping other conditions same.
D. BOD does not depend on time.

Q 13: If Biochemical oxygen demand (BOD) of a town is 20000 kg/day and BOD per capita per day is 0.05 kg, then population equivalent of town is
A. 1000
B. 4000
C. 100000
D. 400000

Q 14: The complex organic compounds of biodegradable nature are broken up by .....which are in turn consumed by animal and plant life for their growth. This cycle goes on
A. Chemical reaction into complex compounds
B. Biochemical reaction into simple compounds
C. Biochemical Reaction into complex compounds
D. Biological reaction into complex compound

Q 15: Phosphorus cycle relates to the maintenance of level of .....
A. Calcium in the soil
B. Phosphorus in the animal and plant
C. Phosphorus in the soil
D. Sulfur in the soil

Q 16: Total solids in wastewater exists in different forms
A. Suspended Solids only
B. Colloidal Solids and Suspended solids only
C. Suspended solids and disolved solids only
D. Suspended Solids, Coilidal Solids and dissolved solids

Q 17: The chloride content in wastewater can be measured by.....
A. Titrating sample with standard silver nitrate solution, using potassium chromate as indicator.
B. Titrating sample with standard Copper Chloride solution, using potassium chromate as indicator.
C. Titrating sample with standard potassium chromate solution, using silver nitrate as indicator.
D. Titrating sample with standard Potassium nitrate solution, using potassium chromate as indicator.

Q 18: Determine ultimate BOD for sewage having 5-day BOD at 20 deg C as 160 ppm. Assume the deoxygenation constant as 0.12 per day.
A. 200.6 ppm
B. 213.7 ppm
C. 223.6 ppm
D. 413.7 ppm

Q 19: Sea water has about .... less DO than river or stream.
A. 5%
B. 10%
C. 20%
D. 50%

Q 20: Zones of Pollution in the stream has sequence as:
A. (1) Zone of degradation (2) Zone of active decomposition (3) Zone of Clearer water (4) Zone of recovery
B. (1) Zone of decomposition (2) Zone of active degradation (3) Zone of recovery (4) Zone of Clearer water
C. (1) Zone of decomposition (2) Zone of active recovery (3) Zone of degradation (4) Zone of Clearer water
D. (1) Zone of degradation (2) Zone of active decomposition (3) Zone of recovery (4) Zone of Clearer water

Q 21: Which statement is not true about aerobic decomposition
A. Aerobic decomposition is caused by both aerobic bacteria as well as facultative bacteria operating aerobically
B. in presence of air or oxygen which is available in the wastewater in the dissolved form

C. These bacteria will utilize the free oxygen as electron acceptor there by oxidizing the organic matter
D. Oxidized into stable and objectionable end products and additional bacteria will not be produced

Q 22: In anaerobic decomposition, identify the correct reactions steps:
A. Hydrolysis - acidogenesis - acetogenesis - methanogenesis
B. Hydrolysis - acetogenesis - acidogenesis - methanogenesis
C. Hydrolysis - acidogenesis - methanogenesis - acetogenesis
D. Hydrolysis - methanogenesis - acidogenesis - acetogenesis

Q 23: What is not true about biomagnification
A. the accumulation of a chemical by an organism from water and food exposure
B. results in a concentration that is greater than would have resulted from water exposure only
C. In aquatic environments, chemicals that are accumulated through biomagnification may eventually become toxic to higher organisms as well.
D. In biodegradation, it is the threshold toxic substrate concentration above which a microorganism cannot degrade the toxic substrate any further.

Q 24: Temperature of wastewater is one of the important physical characteristics and it is commonly higher than that of water supply. Which statement is wrong:
A. Optimum temperature for bacterial activity is in the range of 25°C to 35 °C
B. As temperature increases the viscosity of wastewater increases, corresponding to increase in tendency to precipitate. This will have effect on the solids sedimentaion.
C. Aerobic digestion and nitrification stop when the temperature rises to 50°C. When the temperature drops to about 15°C, methane producing bacteria become in active.
D. As temperature increases the solubility of the gases as well as dissolved oxygen in wastewater increases

Q 25: The organic matter present in the wastewater may belong to two groups Carbonaceous matter & Nitrogenous matter. Which statement is not correct regarding BOD
A. The ultimate carbonaceous BOD of a waste is the amount of oxygen necessary for microorganisms in the sample to decompose the biodegradable carbonaceous material. This is also termed as first stage BOD
B. In the second stage the carbonaceous matter is oxidized by autotrophic bacteria, and the corresponding BOD.
C. the 5 days period is generally chosen for the standard BOD test, during which oxidation is about 60 to 70 % complete
D. the 20 days period is required for 95 % to 99 % complete coxidation

Q 26: The best titrometric or instrumental method for the measurement of total organic matter in water samples
A. Total Organic Carbon (TOC)
B. Chemical Oxygen Demand (COD)
C. Biochemical Oxygen Demand (BOD)
D. Theoretical Oxygen Demand (Th.OD)
Q 27: In self Purification of Natural Streams, which statements are true: i)The automatic purification of polluted water due to environemtal actions, in due course of time is called the

self purification ii) The DO is replenished by the diffusion form the atmosphere (re-aeration) iii) The physical forces of purification which help in effecting self-purification process include oxidation and reduction
A. i only
B. i and ii only
C. i and iii only
D. i , ii and iii

Q 28: Increase in the phosphorous content would increase the algal growth. Excessive algal growth (algal Bloom) will create lot of the problems like taste, odour, problems in oxygen diffusion in lower layer. Ultimately the entire lake can get covered with algae and it may become useless for other organisms. This process is called as
A. Biomagnification
B. Biosorption
C. Eutrophication
C. Putrefaction

Q 29: Aerosol is the dispersion of solids or liquid particles of microscopic size in gaseous media. Which of the following is not aerosol
A. Smoke
B. Mists
C. Fog
D. Pollen grains

Q 30: If environmental lapse is greater than dry adiabatic lapse rate, the atmosphere is..... ; whereas if the environmental lapse rate is less than the moist adiabatic lapse rate, the atmosphere is.....
A. absolutely unstable, absolutely stable
B. conditionally unstable, stable
C. absolutely stable, absolutely unstable
D. stable, conditionally unstable

Q 31: Around Hawaii, the environmental lapse rate lies somewhere between the dry and moist adiabatic lapse rates. What is the atmospheric condition of Hawaii
A. the atmosphere is almost always conditionally unstable
B. the atmosphere is almost always conditionally stable
C. the atmosphere is almost always absolutely unstable
C. the atmosphere is almost always solutely unstable

Q 32: When air parcel is warmer than its surroundings, so it rises and expands; the condition is..... The parcel is cooler than its surrounding, so it sinks and compreses, the condition is called..... and the parcel is same temperature as its surrounding, the condition is called...
A. unstable, stable, neutral
B. stable, unstable, neutral
C. unstable, neutral, stable
D. stable, neutral, unstable
Q 33: The ..... forms looping plume whereas ..... forms fanning plume
A. strongly unstable atmosphere, stable atmosphere

B. unstable atmosphere, stable atmosphere
C. stable atmosphere, unstable atmosphere
D. stable atmosphere, neutral atmosphere

Q 34: The function of automobile catalytic converter is to control emissions of….. and the principal source of volatile organics (Hydrocarbons) is…….
A. carbon monoxide and hydrogen, Transportation
B. carbon monoxide and hydrogen, Industrial processes
C. carbon monoxide and hydrogen, Stationary fuel combustion
D. carbon monoxide and hydrogen, Volcanoes

Q 35: Which of the following air pollution control devices is suitable for the removing the finest dust from the air?
A. Cyclone separator
B. Electrostatic precipitator
C. Fabric filter
D. Wet scrubber

Q 36: In which equipment, the polluted gas stream is forced into a vortex; the motion of the gas exerts a centrifugal force on the particles and particles gets separated?
A. Cyclone separator
B. Electrostatic precipitator
C. Louver type separator
D. Dust trap type separator

Q 37: In manufacturing process of Hydrofluoric acid, the raw material is fluorspar. Fine powder of mineral fluorite, CaF2 is reacted with concentrated H2SO4. Which equipment should be installed to avoid air pollution in the grinding and charging section of the plant?
A. Cyclone separator
B. Electrostatic precipitator
C. Fabric filter
D. Wet scrubber

Q 38: Which of the following air pollution control device has maximum efficiency?
A. Electrostatic precipitator
B. Dynamic precipitator
C. Spray tower
D. Wet cyclonic scrubber

Q 39: 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

Q 40: Identify the correct statement regarding the Electrostatic precipitator.
A. Minimum particle size removal is <0.5μm

B. They can be operated at high temperature
C. It has a low maintenance cost
D. It does not cause any freezing problem

Q 41: In petroleum refinery, fine dust and H2S is by-product in many processes. Which of the air pollution control method can be used to control this?
A. Venturi scrubber
B. Gravitational settling chamber
C. Dynamic precipitator
D. Wet scrubber

Q 42: Which of the following is not a type of inertial separator?
A. Baffle type separator
B. Louver type collector
C. Dust trap
D. Cyclone separator

Q 43: The maximum permissible noise level to which a man working in a chemical plant can be exposed for eight hours per day is about _____ decibels.
A. 60
B. 90
C. 110
D. 120

Q 44: Which of the methods is not air prevention at source method?
A. Process modification
B. Equipment modification or replacement
C. Change in raw material
D. Air pollution control equipment

Q 45: Disposal of screens is done by
A. Sedimentation
B. Flocculation
C. Filtration
D. Incineration

Q 46: Which of the following method is not a post processing activity?
A. Sieving
B. Landfill sealing
C. Drying
D. Disintegrating clumps

Q 47: A(n) _____ is specially designed to safely hold municipal solid waste, construction debris, and some types of agricultural and industrial waste.
A. sanitary landfill
B. open dump
C. waste pit
D. vermicomposting

Q 48: An approach to waste management that seeks to cut waste by reducing the use of potential waste materials in early stages of design and manufacture.
A. Engineering Control
B. Closed-Loop Recycling
C. Composting
D. Source Reduction

Q 49: It also means you do not have to buy a new product because discarded items are used again.
A. REUSE
B. REDUCE
C. RECYCLE
D. none of these

Q 50: These are by-products resulting from human biological processes, manufacturing, materials processing, consumption of goods or any other human activity.
A. siltation
B. leachate
C. acid mine drainage
D. solid, liquid, gaseous wastes

Q 51: Which of the following is not E-waste characteristics
A. E-waste is hazardous and toxic
B. E-waste produces much higher volumes of waste in comparison to other consumer goods due to rapid evolution of technology combined with rapid product obsolescence
C. A waste from relatively expensive and essentially durable products used for data processing, telecommunications or entertainment in private households and businesses.
D. E-waste can be used in food packaging

Subject Teacher:
Dr. Vikesh Gurudas Lade
Assistant Professor
Department of Chemical Engineering
Laxminarayan Institute of Technology, Nagpur