

KATHMANDU UNIVERSITY
End Semester Examination
June/July, 2023

Marks Scored:

Level : B.Sc.

Year : II

Exam Roll No. :

Time: 30 mins.

Course : ESEE 221

Semester : II

F. M. : 20

Registration No.:

Date

1: 0 JUL 2023

SECTION "A"

[20 Q. × 1 = 20 marks]

Mark [X] the most appropriate option.

1. Source monitoring is carried out for:
 evaluation of the effectiveness of control devices for pollution abatement
 identification of pollution sensitive zones
 mapping the concentration of pollutants in the environment
 identification of possible sites for the environmental monitoring stations
2. Environmental indicators are measured to _____.
 decrease the emission
 mitigate the risk associated
 distinguish the impacts of the activity from other factors
 ensure the cost effectiveness of the project
3. _____ is the unnatural transport of pollutant in a fluid.
 Advection
 Turbulent dispersion
 Gravitational settling
 Centrifugal settling
4. Which of the following is NOT a commonly monitored parameter in environmental monitoring?
 Population density
 Noise levels
 Water quality
 Air quality
5. Design year is :
 Base year + Base period
 Design period – Base year
 Survey year + Base year
 Base year + Design period
6. Mass flow rate is:
 Concentration × Time
 Concentration × Volumetric Flow rate
 Volumetric Flow rate / Time
 volume per unit time
7. Pump in the water supply scheme is _____.
 usually preferred while designing
 decreases the O&M cost
 relevant while source is at lower elevation than service area
 not relevant

8. Which of the following is **TRUE** related to the sedimentation tank designed after coagulation and flocculation?
- surface overflow rate adopted for designing is less than that for plain sedimentation tank.
 Effluent of the tank is filtered through slow sand filter
 requires smaller area than that for plain sedimentation tank
 efficiency is directly proportional to the depth of the tank
9. Which of the following is **NOT** true for an ideal sedimentation tank having Length (L) and Breadth (B) and Height (H) is receiving a discharge of $Q \text{ m}^3/\text{s}$?
- Sediments are uniformly distributed
 equal velocity at all points lying in the each vertical
 All particles having settling velocity $< Q/BL$ will escape from the tank
 the settling path is the resultant of horizontal velocity and settling velocity
10. Plain sedimentation is expected to remove particles of specific gravity _____
- < 1 > 1.2 $= 2.65$ < 2
11. Aeration in drinking water treatment process does not remove:
- Iron Color Hardness Pathogens
12. Zone settling refers to the settling of particles _____.
- in a suspension of low solids concentration
 with low flocculancy
 in thickener
 in secondary sedimentation tank
13. Which of the following substances is not commonly used as a coagulant in water treatment processes?
- Ferric chloride Sodium hydroxide
 Ferric sulfate Polyaluminum chloride (PAC)
14. In a flash mixer, using coagulant in _____ form will decrease the Hydraulic Retention Time (HRT) during water treatment?
- solid liquid granular powdered
15. Which of the following is **NOT** related with rapid sand filter?
- Backwashing Requirement of 0.2-0.6% of wash water
 Cleaning every 1-3 days Application of air pressure
16. The time required for the microorganisms to acclimate to their new environment is represented by _____ phase.
- lag phase log-growth stationary Endogeneous
17. Which of the following is attached growth process?
- Activated sludge Aerated lagoons
 Trickling filters Oxidation ditch

10 JUL 2023

18. In isokinetic sampling, the sample flow rate is adjusted to match
- The velocity of the gas stream being sampled
 - The concentration of gaseous pollutants in the air
 - The temperature of the sampling equipment
 - The pressure inside the sampling chamber
19. The first generation device used for air quality monitoring that involves collection of dust that settles to the earth by gravitation is:
- Electrostatic precipitator
 - Gravity settler
 - Deposit gauge
 - High volume sampler
20. What is the full form of DBPs in chlorination?
- Disinfection byproducts
 - Disinfection benzene particulates
 - Degree of basic particulates
 - Dichloro benzene phenyl