

KATHMANDU UNIVERSITY
End Semester Examination [C]
June/July 2024

Marks Scored:

Level : B.E.

Year : I

Exam Roll No. :

Time: 30 mins.

Registration No.:

Course : ENVE 102

Semester : I

F. M. : 20

Date

02 JUL 2024

SECTION "A"

[20Q. × 1 = 20 marks]

Choose and encircle the most appropriate option from each set of choices.

- Which of the following is NOT considered while making engineering decision?
 - Technical and design Evaluation
 - Economic Analysis
 - Environmental and Social assessment
 - Change the desired outcome
- Which of the following is Mass intensive Property?
 - Density
 - Volume
 - Mass
 - Internal Energy
- Catchment area is _____.
 - The area of land draining into a stream or a water course.
 - Small rivers that join the main river.
 - The place where a river flows into another body of water.
 - Water lost from seepage.
- The mass balance equation for non-steady state conservative system is _____.
 - Input = Output
 - Accumulation = Input - Output
 - Input = Output + KCV
 - Accumulation = Input - Output
- The annual runoff from the catchment of 2000 ha if the annual precipitation is 1400 mm and annual evapotranspiration is 800 mm is _____ m³.
 - 12×10⁶
 - 1.2×10⁶
 - 44×10⁶
 - 4.4×10⁶
- Wet weather flow is _____.
 - water from rainfall.
 - wastewater from Kitchen
 - sewage flows and runoff
 - treated water
- If water is to be transported from lower elevation to higher elevation on the hill, required additional unit or chamber is _____.
 - Pumping system
 - Digital meter
 - Control Valve and Sensors
 - Break Pressure Tank
- A city has a projected population of 60,000. The design discharge for the separate sewer line by assuming rate of water supply of 250 lpcd (Peak factor =3) and out of this total supply, only 80% reaches in sewer as wastewater _____ m³/s.
 - 4
 - 0.4
 - 40
 - 14
- _____ is the process of water treatment in which turbidity and colloidal matter of non settleable types are removed.
 - Filtration
 - Aeration
 - Screening
 - Sedimentation

10. A wastewater treatment plant discharges a flow of 1.5 m³/s at a solids concentration of 20 mg/L. How much solids is the plant discharging each day in kg?
 a. 260 b. 2600 c. 26 d. 2.6
11. The extra space is left in sewer pipes at maximum discharge for:
 a. Unexpected increase in population
 b. Large scale infiltration of storm water
 c. Low estimates of the average and maximum flows
 d. All the above
12. The means of access for inspection and cleaning sewer line is known as _____
 a. Manhole b. Inlet c. Cover d. Catch Basin
13. The phase when microbes start declining from its peak is known _____ Phase.
 a. Lag b. Log c. Stationary d. Endogenous
14. Which of the following sewer has the largest diameter?
 a. Outfall b. Branch c. Laterals d. Trunk
15. Which of the following is NOT a criteria pollutant?
 a. CO b. O₃ c. CH₄ d. NO_x
16. Air quality index are _____.
 a. Measure of how clean or polluted the air is.
 b. Presence of contaminants in the atmosphere.
 c. Devices that work to prevent a variety of different pollutants.
 d. Acceptable threshold level of air pollution
17. The energy balance equation for a open system is _____.
 a. $\Delta H + \Delta KE + \Delta PE = Q - W_{\text{shaft}}$
 b. $\Delta H + \Delta KE + \Delta PE = Q - W$
 c. $\Delta U + \Delta KE + \Delta PE = Q - W$
 d. $\Delta U + \Delta KE + \Delta PE = Q - W_{\text{flow}}$
18. Environmental Impact Assessment (EIA) is conducted for _____.
 a. Products b. Policies c. Projects d. None
19. A town of 5,000 households each fill up one 100 liter (density of waste in bins is 100 kg/m³) container of refuse per week. What density would a 12 m³ packer truck have to compact the refuse to be able to collect all during two trips in a week?
 a. 30000 kg/m³ b. 2083 kg/m³ c. 100 kg/m³ d. 500 kg/m³
20. A Functional Unit is _____.
 a. defines how big a part of product life cycle will be.
 b. a quantified description of the performance of the product systems.
 c. description of material and energy flows.
 d. critical balance of supplies.