

KATHMANDU UNIVERSITY
End Semester Examination
March/April, 2017

Marks Scored:

Level : B. Sc./B. Tech.
Year : IV

Course : ENV5 431
Semester : I

Exam Roll No. : Time : 30 mins.

F. M. : 20

Registration No. :

Date : MAR 27 2017

SECTION "A"

[20 Q. × 0.5 = 10 marks]

Tick (✓) the most appropriate answers and fill in the blanks.

- The most serious environmental effect posed by hazardous wastes is
(a) air pollution. (b) contamination of groundwater.
(c) increased use of land for landfills. (d) destruction of habitat.
- BOD/COD ratio for leachate will always be:
(a) Equal to 1 (b) between 0.6-0.9 (c) More than 1 (d) between 0.1 to 0.5
- The highest heating value is of:
(a) Rubbish (b) Garbage (c) Hospital waste (d) Industrial waste
- The highest moisture content is in:
(a) Garbage (b) Rubbish (c) Agricultural waste (d) Hospital waste
- Leachate in stabilized/matured LFS has as compared to young aged LFS.
(a) high BOD and COD (b) low BOD and COD
(c) high BOD and low COD (d) low BOD and high COD
- High level radioactive waste can be managed in which of the following ways?
(a) Dumping in sealed containers (b) Open dumping
(c) Composting (d) Incineration
- Biomedical waste may be disposed of by?
(a) Composting (b) Autoclaving (c) Mono Landfilling (d) Both (b) and (c)
- Write down one example of the followings.
(a) Wet waste (b) E-waste
- Transfer station is considered when haulage distance is
(a) Greater than 10 km (b) Greater than 20 km
(c) Greater than 7 km (d) Greater than 15 km

10. Which of the following vehicle has highest waste carrying capacity?
(a) Skip (b) Tractor trailer (c) Tipper (d) Miller truck
11. Total operating cost per year per truck = Annual depreciation + + operation and maintenance per year
12. The densities of solid waste vary markedly with geographic location, season of the year and
13. Write down the formula for compaction ratio (r) =
14. Biological Volatile Solids (BVS) is the fraction of during treatment.
15. Pickup time per trip (hr/trip) for HCS is calculated as $P_{hcs} = P_c + U_c + d_{bc}$
Where $P_c = \dots$ hr/trip.
16. Bench is provided where the height of the landfill exceeds to meters.
17. The trench (or ditch) method is used in flat regions and consists of periodically digging trenches of meters depth with an excavator or tracked dozers.
18. Full form for **NIMBY** is
19. Limbs, organs, blood, tissues are referred as waste.
20. analysis of chemical properties of SW is also known as the elemental analysis of the solid wastes.

SECTION "B"
[10 Q. \times 1 = 10 marks]

Define the following terminologies in one sentence.

21. Liner:
22. Assimilation capacity:
23. Clinical wastes:

24. Garbage:

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25. Water balance in LFS (write down formula only):

26. Permeability calculation in SW (write down formula only):

27. Windrow composting:

28. Ultimate BOD (calculation formula):

29. Transfer station:

30. Basel convention:

